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WITH THE ASSISTANCE OF

GENTLEMEN EMINENT IN SCIENCE AND LITERATURE.

IN EIGHTEEN VOLUMES.

VOLUME IV.

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THE

EDINBURGH ENCYCLOPÆDIA.

BOTANY.

efinition. BOTANY, deriving its name from the Greek word *βοτανη*, grass, is that branch of natural science, which teaches us the properties, relations, and general œconomy of what is usually called the *vegetable kingdom*, and which, at the same time, by presenting the innumerable individuals of which this kingdom consists, in a form of arrangement that brings them easily within the reach of our comprehension, enables us in practice, both to designate them by their proper names, and to avail ourselves of what is known concerning their medical or œconomical uses.

HISTORY.

istory. That men were led, from the earliest times, to pay some attention to the herbs and trees growing spontaneously around them, is a circumstance so natural as hardly to require that we should say any thing in proof of it. Their dependence on the vegetable kingdom for a part of their food, as well as their innate desire to improve their situation, could not fail, even in the least favourable state of society, to make them distinguish a few such plants as they had found to be useful, in order to their afterwards having recourse to them. And in proportion as civilization advanced, and property, now recognised, began to be put under the protection of law, the inducements to extend their discoveries in a branch of knowledge which promised to be of so much advantage to them, would continue to multiply. A spirit of inquiry, provoked by self-interest, and encouraged by the prospect of security in what regards possession, would begin to manifest itself. The ornamental and uncommon, as well as the medicinal and more necessary tribes of vegetables, which are, of course, the first objects of attention in the earlier periods of society, would come, in process of time, to be sought after and cultivated; and the catalogue of discovery, which had hitherto consisted of little else than a few rude names, would gradually assume a more enlarged and interesting form.

At length, when a state of independence had secured to individuals a sufficient portion of unoccupied time, curiosity would naturally take a wider range; and the sum of that knowledge, which till now had been chiefly the result of accident, or, at least, of a confined sort of observation, would receive frequent additions from the labours of men, who devoted themselves, from choice, to the business of inquiry. New plants would be collected; the habit and virtues of such as were already known, would be carefully explored; and the result of these researches, being at length committed to writing, along with the facts and circumstances which had been otherwise brought to light, would constitute the first proper rudiments of botanical history.

Early history of botany. Such, we have reason to believe, has been the usual progress of discovery. And on looking back to that period in the history of nations, to which we are referring, we accordingly find, that the degree to which those who enjoyed any facilities of study, had pushed their acquaintance with the vegetable kingdom, was often considerable. Among the Jews, for instance, Moses and Solomon, who lived comparatively in the infant state of science, bestowed much attention on plants; and by way of giving us some idea of the attainments which the latter, more especially, had made in this sort of knowledge, it is said in scripture that "he spoke of trees from the cedar in Lebanon, even to the hyssop that springeth out of the wall." Among the Persians, in like manner, Zoroaster, their celebrated lawgiver, was extensively conversant with botanical studies; and the same may be said of Hesiod, Solon, Pythagoras, and Crateras; but more particularly of Hippocrates and Aristotle among the Greeks.

Labours of Theophrastus. Born A.C. 371. Died A.C. 266. Of botany, as a science, there is, however, little or nothing on record that has come down to our times, except a few fragments of a work of Aristotle, of an older date than the age of Theophrastus. This elegant scholar, who was born at Eresium in the island of Lesbos, about 371 years before Christ, was the

History.

favourite disciple of Aristotle, a philosopher, whose ardent and comprehensive mind, had left scarcely any thing unexplored in the circle of the sciences. To the knowledge which he had derived from the lessons of such a master, as well as from the use of an invaluable library, which that master, at his death, bequeathed to him, as his successor in the Peripatetic school, Theophrastus added the result of much personal observation. And when he was now advanced in life, and had thrown his materials into that form which appeared to him most eligible, he at length favoured the world with a philosophical work on his favourite subject, entitled περι φυτων ιστοριας, or the History of Plants. The greater part of this publication, into which he introduced a description of 500 plants, is still extant; but as he adopted no better principles of arrangement than the variable ideas which soil, size, lactescence, and œconomical uses suggest, its merit in these days is considered as arising chiefly from the scientific and classical views which it gives us of the structure and general œconomy of vegetables.

Dioscorides.

About 400 years afterwards, he was followed in the same course of observation and study by Dioscorides, a native of Cilicia, but of Grecian extraction. After having made several extensive journies through different parts of Asia, and spared no pains to get acquainted with the names and virtues of all the plants that were then known, this diligent botanist published an account of 600, distributed, from their officinal qualities, into the four classes of aromatic, vinous, medicinal, and alimentary vegetables. But though his descriptions are accurate and more comprehensive than his predecessors, his principles of arrangement are scarcely less objectionable; and it may be added, that he wrote particularly with a view to illustrate the medical virtues of plants.

Pliny.
Born
A. D. 20.
Died
A. D. 76.

The elder Pliny, who lived but a few years after Dioscorides, and who ultimately fell a victim to his love of knowledge in an attempt to approach Mount Vesuvius immediately after an eruption, devoted his attention, among other things, to plants. In the course of his *History of the World*, which may be viewed as a compilation of all that was known to the ancients on the subject of natural history, he has given us some account of upwards of 1000 species. But, as we might naturally expect in a compilation from authors of various merit, his facts and descriptions are often inaccurate, and mixed with a good deal of extraneous matter; and his whole work, so far as he treats of plants, is so devoid of order, that the only distinction which he makes use of is, the obvious, but very uncertain one, of trees, shrubs, and herbs.

From the time of Pliny downwards, for the space of several hundred years, we scarcely read of any person who made a figure as a botanist. The study of the science was either wholly neglected, or pursued only by a few insulated individuals, without any ideas of method, or advantage from the labours of their predecessors. In Arabia, it is true, an attempt was made, about the close of the eighth century, to bring it into repute, by Serapis, Razis, Avicenna, and others; who, for this purpose, translated the writings of the Greek authors, and made various compilations from them. But, in the western world, the birthplace heretofore of genius and learning, improvement of every kind was arrested; society was put back from its natural course, and a darkness that might be felt succeeding every where the ravages of those numerous hords of barbarians that poured in upon the Roman empire, extinguished for ages the very glimmerings of science. It was only about the beginning of the sixteenth century, that a taste for botany, keeping pace with the revival of learning, began to be again cultivated. The works of Theophrastus, Pliny, Avicenna, and other ancient authors, were translated, and given to the public with the notes and illustrations of several learned commentators. And, in the mean time, the stock of knowledge contained in them was enlarged, and by degrees reduced into a more convenient form by the labours of men who devoted themselves to the task of original observation.

History

Modern
history o
botany.

Brunfels.
Died 153

Tragus.
Born 14
Died 155

Cordus.
Born 151
Died 154

Fuchsius.

Matthiolus.
Born 15
Died 157

Dodonæ
Born 151
Died 158

De Lobe

Turner.
Died 156

Clusius.

Otto Brunfels, a native of Mentz, who died in 1534 at Berne, in Switzerland, where he had gone to practise medicine, was the person who may be said to have taken the lead in this respect, having published, four years before his death, a work containing the fruit of his own researches, in two vols. folio, illustrated with cuts, which he entitled, *Historia Plantarum Argentorati*. A short while after, Hieronymus Bock, or Tragus, as he is generally called, a German, who was born in 1498, and died in 1554, published a history of plants in his *Kreüterbuch*, into which he introduced pretty accurate descriptions of 800 species, arranged according to their habit, size, and figure, and accompanied with cuts; which, like those of Brunfels, are, however, rude, and such as might be expected in the infancy of engraving. Euricus Cordus, and his son Valerius, who were natives of Hesse, and nearly contemporaries of Tragus, were rather eminent for their labours in illustrating the descriptions of their predecessors, and more especially of the ancients, than for adding to the sum of original discovery. Leonard Fuchsius, however, a German, who was born in 1501, and died at Tubingen, where he was professor in 1566,—Peter Andreas Matthiolus, physician at Siena, in Italy, who flourished about the same time, and had made the writings of the Greek authors, but chiefly those of Dioscorides, in a particular manner his study,—Rembert Dodonæus, physician to the Emperor Charles V., and latterly professor of botany at Leyden, where he died in 1585,—Matthias de Lobel, physician to James I. of Great Britain,—our countryman Dr Turner, author of the *British Herbal*,—and above all, the celebrated Charles L'Ecluse, or Clusius, a Flemish botanist, who, after travelling through many countries, with much risk, and more than one serious accident to himself, from devotedness to his favourite pursuit, became superintendent of the emperor's gardens at Vienna; and towards the close of his life, which happened in 1609, accepted of an invitation to be professor at Leyden,—contributed, in a very eminent degree, by their own observations, as well as by the improvements which they made on the labours of preceding writers, to the advancement of the science. Botany, it is true, had not yet assumed any regular form; and the histories of the plants which they published, consisted of little else than descriptions, more or less accurate, of so many unconnected species. But still the number of these had been very much augmented, in consequence of their diligence: for instead of the 800 species, described by Tragus in 1532, we find, in the *Stirpium Historia* of Dodonæus, published a short while before his death, an account of 1330; and in the *Rariorum Plantarum Historia* of Clusius, which appeared not long after, taken in connection with the writings of De Lobel, we find descriptions of nearly 800 more.

Fuchsius.
Born 1501.
Died 1566.

De Lobel.
Born 1538.
Died 1616.

Clusius.
Born 1526.
Died 1609.

The work by which Fuchsius, who appears to have been a man of an acute mind, but not so conversant with nature as Tragus, contributed most to advance the interests of botany, was his *Historia Plantarum*, which appeared in 1542, accompanied with 512 large and very excellent outlines, or shaded sketches of plants, taken chiefly from Brunfels. Matthiolus, on the other hand, besides publishing in 1548 an elaborate edition of Dioscorides, with cuts, the merit of which may be estimated from its having been translated into different languages, and gone through more than thirty editions, was the author of a work, entitled, *Compendium de Plantis*, which is also characterised by learning and ability. De Lobel, who was an industrious, but not a very discriminating, botanist, wrote first in conjunction with Pena, a physician in Provence, the *Nova Stirpium Historia*, containing descriptions, though often crudely enough expressed, of many new plants, discovered by them in the course of various journeys in France, Germany, Switzerland, Italy, and Great Britain; and afterwards by himself, the *Plantarum seu Stirpium Historia*, which was published in 1576, and again republished, in a less detailed form, but with many additional cuts, borrowed chiefly from the works of his contemporaries, under the title of *Plantarum Icones*, in 1581. Dodonæus, besides being the author of the *Stirpium Historia*, above alluded to, and of two or three other tracts of less moment, which it would be needless to specify, had the merit of benefiting the science, by introducing a peculiar style of neatness and accuracy in his figures, as well as in his descriptions; and so far as the labours of Clusius are concerned, we may be allowed to say, that while he evinced, in every thing, the powers of a superior mind, he both wrote more, and pushed his inquiries to a greater extent, and with much greater risk to himself, than any botanist of the age in which he lived. His various publications embraced some account of almost all that was then known of the vegetable kingdom. But without specifying any of them, except the *Rariorum Plantarum Historia*, already mentioned, which appeared in 1601, and the *Plantæ Exoticæ*, which followed soon after, we shall content ourselves with rather quoting what is briefly stated by Willdenow, the present able professor at Berlin, partly in the words of Tournefort, by way of giving some general idea of his toils and merit as a botanist. Being early drawn aside from the study of the law, to which his parents had destined him, by an unusual fondness for botanical pursuits, "he undertook," says this gentleman, "the most tedious and troublesome journies through Spain, Portugal, France, Great Britain, the Netherlands, Germany, and Hungary. In his 24th year he already became affected with dropsy, but was cured by the use of cichories, recommended to him by the famous physician Rondeletius. In his 39th year, in Spain, he broke his right arm close above the elbow, falling with his horse; and soon after he had the same accident with his right thigh. In his 55th year, in Vienna, he sprained his left foot; and eight years afterwards dislocated his hip. This last dislocation was overlooked by his physician, and he had the misfortune to walk for the remainder of his life on crutches. The great pain and difficulty he had thus to suffer when walking, prevented him from taking the necessary exercise, in consequence of which he was affected with a hernia, obstructions in his abdomen, and calculous complaints. Thus miserable and unhealthy, tired of the court of the emperor, where he had resided for fourteen years past, and finding, besides, the superintendence over the gardens there too great a burden, he accepted, in the year 1593, an invitation as professor at Leyden, where he died soon after." Having said thus much with respect to his history, he adds, "Clusius was the greatest man of his age, and prosecuted the study of botany with an enthusiastic zeal, and a perseverance, which was not equalled by any preceding philosophers, nor by any of his followers. His works shew us the great botanist, and they will always remain valuable and indispensably necessary. The cuts annexed to them are neat, the figures distinct, and his descriptions masterly. It was a pity that a man of so great merit should have suffered so much, and even become the first martyr for botany."

Gesner.
Born 1516.
Died 1565.

Another very eminent person of this period, whom it would be unjust in us not to take particular notice of, both on account of his vast acquaintance with every branch of natural history, and especially for the improvements which he had intended to introduce into the science of botany, was Conrad Gesner. He was born at Zurich in Switzerland, in the year 1516, and while he was yet hardly more than a boy, discovered an insatiable desire for knowledge, and the powers of an almost universal genius, accompanied with an industry and perseverance which nothing could appal. Having been early accustomed by an uncle of the name of John Friccius, who had a similar predilection, to wander over his native mountains, and examine what struck him as new and unusual in the vegetable kingdom, with the eye of a botanist, he continued through life, amid innumerable other studies, to bestow a more than ordinary attention on this favourite pursuit. Besides making himself familiarly acquainted with the flora round Lausanne, Basle, and Zurich, where he successively resided, he extended his researches by degrees over the rest of his native country, and particularly over the Alps; being in the habit, we are told, of making some botanical excursion through one part or another of it, almost every year. He likewise visited France and Italy: and wherever, in the course of his travels, he happened to find plants which he had not seen before, he delineated them, or endeavoured to have them conveyed home and cultivated in his garden. Having in this way, or by the good offices of many who had heard of his singular merit, and admired him, pro-

History.

cured several hundred plants, which were not mentioned by the ancients, nor by any preceding writer; and having also made numerous experiments to discover their virtues, he was proceeding, with the aid of eminent artists, to prepare a work on the subject which might be worthy of the public eye. Unfortunately, however, when he had got ready upwards of 2000 very neatly executed figures, and was now almost on the point of sending the fruit of thirty years labour and study to the press, he was seized with the plague, which was then raging at Zurich, and died soon after in his Museum, where he had been carried at his own desire, when he found his end approaching, in 1565; having only reached the age of 49, and being nevertheless, to use the words of Tournefort, the father of natural history in all its departments. His MSS. relating to botany, though committed with particular directions to the charge of one in whom he reposed confidence, were never made public; and those elegant figures, which he had left for the purpose of illustrating his own works, were afterwards surreptitiously made use of in several instances, to adorn and recommend the publications of others. Instead, however, of tracing their fate, or of pronouncing any opinion upon what he did publish on the general subject of botany, which was not very considerable, we rather hasten to add, that the principal reason for our bringing him forward so conspicuously in this place, is, to present him in what will ever be an interesting point of view, as the original contriver of systematic arrangement. In the year 1560, this skilful observer, whom Haller elegantly characterises, when he styles him, *vir animo, labore, ingenioque pariter eximius*, suggested that, in order to facilitate the study of botany, advantage might be taken of the parts of fructification. That he understood the doctrine of what is now called the sexual system, and the necessary connection which it supposes between the flower and the fruit, in order to the perfection of the latter, we are not prepared to say, because he never explained his ideas at any length to the public. But still he knew, what long observation must have impressed upon his mind, that the seed was necessary to the reproduction of the vegetable, and was always preceded, in one form or another, by the flower. And as these parts, besides being of course the most essential and interesting, are at the same time possessed of considerable variety, he, naturally enough, conceived that plants might be so distributed into groupes or classes, by characters drawn from them, as to be viewed to more advantage, and brought more readily under the command of the mind for any useful purpose, than in the vague and insulated way in which they had been hitherto treated of.

Cæsalpinus.
Born 1519.
Died 1603.

Proceeding upon this idea, Dr Andrew Cæsalpinus, a Florentine, some time professor of botany at Padua, and afterwards physician to Clement VIII. at Rome, made the first attempt at systematic arrangement. In his work *De Plantis*, published at Florence in 1583, he distributed the plants, which he has described in it to the number of 1520, into 15 classes, of which the distinguishing characters were taken from the fruit. His classes were as follows;

History.

Arrangement of Cæsalpinus.

1. Arbores, corculo ex apice seminis.
2. . . . . . corculo a basi seminis.
3. Herbæ, solitariis seminibus.
4. . . . . . solitariis baccis.
5. . . . . . solitariis capsulis.
6. . . . . . binis seminibus.
7. . . . . . binis capsulis.
8. . . . . . triplici principio, fibrosæ.
9. . . . . . triplici principio, bulbosæ.
10. . . . . . quaternis seminibus.
11. . . . . . pluribus seminibus, Anthemides.
12. . . . . . pluribus seminibus, Cichoraceæ. seu Acantaceæ.
13. . . . . . flore communi.
14. . . . . . folliculis.
15. . . . . . flore fructuque carentes.

From this synopsis of the method of Cæsalpinus, it appears, that he set out by making a distinction, common enough long after his time, between trees and herbs: and that he distributed the species of the first grand division into two classes, according as the corculum or germ is situated at the point of the seed, as in the oak, elm, ash, walnut, sumach, and cherry;—or at the base of it, as in the fig, apple, tamarind, mulberry, fir, cypress, and juniper. The species of the second grand division again he formed into 13 classes, according to the number of the seeds, seed vessels, and the internal divisions of their cavities. The third class, for instance, was made to consist of those plants which have a single naked seed only, as valerian, nettle, hop, and the grasses; the fourth, of those which have a single undivided berry, or pulpy seed vessel, with several seeds, as cucumber, honey-suckle, deadly night-shade, and briony; and the fifth, of those which have a single undivided capsule, or dry seed-vessel, as pink, primrose, swallow-wort, and the papilionaceous flowers. The sixth class, on the other hand, was made to consist of those plants which have two naked seeds; and the seventh, of those which have a twofold seed vessel, or, in other words, a seed vessel divided internally into two cells, as mercury, speedwell, agrimony, and the stellated flowers. The eighth and ninth classes were made to comprehend those plants which have a triple seed vessel, or a seed vessel divided internally into three cells; the plants of the former being more immediately distinguished by their fibrous roots, as convolvolus, violet, and St John's wort; and those of the latter by their having bulbous roots, as the tulip, hyacinth, narcissus, and other species of the liliaceous family. The tenth class was made to comprehend those plants which have four naked seeds, as rosemary and sage; and the eleventh, twelfth, and thirteenth, those which have several naked seeds: the ground of distinction among themselves being, that the plants of the eleventh class have what are now called radiant compound flowers, as camomile; those of the twelfth, either what are now called semiflosculous, or discoid compound flowers, as succory, or thistle; and those of the thirteenth, such simple flowers as are common to all the seeds, as flos Adonis, herb bennet, and cinquefoil. The fourteenth class was formed to include such plants as have several capsules, or cells of capsules together, as anemone, poppy, and hellebore; and the last comprehended the ferns, flags, mosses, and mushrooms.

Such was the method proposed by Cæsalpinus, in order to facilitate the study of the vegetable kingdom: and as it was both the first attempt of the kind, and likewise possessed of considerable merit, one should have thought that, on its being made known, it would naturally have drawn very general attention. The fact was, however, otherwise; for it ceased to be thought of almost as soon as it was published. And for a century afterwards, the science was indebted for its advancement, as heretofore, to the exertions of those, who employed themselves in discovering new plants, or in giving the world a more accurate delineation of the specific characters of such as were known.

Leonard Rauwolff. Died 1596.

About the time when Cæsalpinus published the book *De Plantis*, containing his system, Leonard Rauwolff, a celebrated German, who had travelled very extensively through Syria, Palestine, Mesopotamia, Arabia, and Egypt, between the years 1573, and 1575, and who died in 1596 in the capacity of physician to the Austrian army, gave the public a very excellent account of his travels, embracing, among other things, descriptions of several rare plants, which he had gathered in them.

Dalechamp. Died 1587.

Molinæus.

Four years afterwards appeared a work in 2 vols. folio, entitled *Historia Generalis Plantarum*, in which an attempt was made for the first time, to combine the discoveries of preceding botanists, and to give some connected account of the whole. It had been chiefly compiled by James Dalechamp, a native of Caen, in Normandy, and physician at Lyons; a man of indefatigable industry, who had made it a leading subject of attention for thirty years, and who had himself gathered many plants on the Alps, and in Switzerland, as well as in the contiguous parts of France, which he meant to describe in it: but as he was somehow prevented from going on with it himself, the task of completing it was first committed to John Bauhin, whom we shall immediately have occasion to notice; and on his retiring into Switzerland soon afterwards, on account of religion, to John Molinæus, or Moulins, an accomplished physician and naturalist, who also resided at Lyons. It was not however published till after the death both of Moulins and Dalechamp; and, of course, although it is doubtless a compilation of no small merit, so far as research and industry are concerned, it is not without much of that incorrectness and repetition which we might expect in a work that, besides being the first of the kind, and the production, too, of various authors, had not the advantage of being finally completed and published under the inspection of any of them.

Camerarius. Born 1534. Died 1598.

Tabernæmontanus. Died 1590.

Thalius.

Joachim Camerarius, a celebrated German, who had travelled widely through Italy, where he took the degree of doctor of medicine; and James Theodore Tabernæmontanus, an ative of Deux Ponts, in France, the pupil of Tragus, and latterly physician to the Elector Palatine at Heidelberg, contributed, about the same time with Dalechamp and Moulins, to promote the interests of botany by their valuable labours. The merit of Camerarius lay chiefly in his favouring the world with the *Hortus Medicus et Philosophicus*, a publication extracted for the most part from the writings and MSS. of preceding botanists; but particularly from the MSS. of Gesner, which he had the good fortune to purchase along with his collection of cuts, to the number of 2500; and in his publishing new editions of the *Epitome of Matthiolus*, and of one or two other works, enriched with many excellent figures, partly executed by himself, and partly taken from the collection of Gesner, and with much useful information as to the names, places of growth, and medical virtues of the plants, which were treated of in them. The merit of Tabernæmontanus, on the other hand, consisted in his labouring somewhat in the way of Dalechamp, for thirty-six years, as we are informed by Haller, to prepare a general history of plants, illustrated with figures; which he at length brought well on to a conclusion, though he lived only to publish the 1st vol. of it; the second appearing in 1590, under the auspices of Dr Nicholas Braun, who had made several additions to it. Nor can we forbear to connect with the memory of these two botanists, the name of a contemporary author, Dr John Thalius, physician at Nordhausen, who surveyed the Hercynian Forest with much attention, and afterwards communicated his discoveries in a treatise entitled, *Sylva Hercynia*, which was first published along with the *Hortus Medicus* of Camerarius.

Alpinus. Born 1553. Died 1617.

Gerard. Born 1545. Died 1607.

Pona.

Herrera.

D'Acostas.

Shortly after the time we are speaking of, Prosper Alpinus, an eminent Venetian, who was successively physician at Venice and Genoa, and towards the close of his life, which happened in 1617, professor of botany in the university of Padua, performed an acceptable service by writing on the plants of Egypt, a country which he had been led to visit, from attachment to his favourite study, and in which he had spent the greater part of four years. Our countryman Gerard, a native of Namptwich, in Cheshire, proceeded also with much diligence, and no small degree of ability, to complete and publish his *Herbal*, which was long after appealed to as a sort of standard book among English botanists; Pona, an apothecary of Verona, in Italy, made that botanical survey of Mount Baldo, of which some account was first given to the world in Clusius's history of plants, under the title of *Iter Montis Baldi*, in the year 1601; and, to say nothing of several other sources of information, we may add, that botanical knowledge began about this time to receive very important accessions from the researches of a few, such as Herrera, and the D'Acostas, whom curiosity or interest had led to visit the newly discovered countries of America and the East Indies.

John and Caspar Bauhin.

The most eminent botanists of this period, were, however, doubtless, the two brothers John and Caspar Bauhin, natives of Lyons: of whom the former died in 1613, at Mumpelgard, as physician to the Duke of Wurtemberg; and the latter in 1624 at Basle, in Switzerland, where he had obtained a professorship. They both inherited from nature a strong predilection for the study of plants; and the effect which their skill and assiduity had eventually on the state of the science, was such, that Haller has dated one of the periods of its history from the time when they flourished. John, the disciple of Fuchsius, travelled widely through Italy, Switzerland, and the contiguous parts of France, and made several discoveries. Caspar, who was almost twenty years younger, followed at some distance of time nearly in the same tract. And after each of them had, in other respects, devoted the greater part of a long life to the examination of the vegetable kingdom, and had maturely consulted the writings of their predecessors, they at length had the honour of completing, in the well-digested result of their respective labours, a more valuable present to the science, than it had hitherto received from any two individuals.

John Bauhin. Born 1541. Died 1613.

The principal work of John Bauhin, which was not however published till several years after his death, (though a *Prodromus* intended to convey some idea of its contents, made its appearance earlier) was an elaborate, *General History of Plants*, in 3 vols. fol. illustrated with cuts. And with respect to this work, we cannot express our opinion better than in the words of the celebrated Haller, who, after glancing, in his *Bibliotheca Botanica*, at a few defects in it, such as the wrong application of some of the figures, owing to the ignorance of the editor Chabræus, continues thus: "Verum cum istis mendis, vix imputandis auctori, bonus tamen et fidelis codex est, quem typis expressum habemus; et opus omnibus expensis, tamen hactenus sine pari. Plantæ numerosissimæ, plerumque bene descriptæ, cum collectis omnium scriptorum locis, non absque critico judicio, et in unum magno cum judicii acumine collecta, quæ ad eo tempora de plantis innotuerant. Eo opere Rajus plurimum usus est, et non bene Bauhino exprobatur, novas plantas non continere, nam continet plurimas, et ex magnis illis generibus, parum hactenus excultis, quas vel ipse invenerat, vel gener J. Henricus Cherler. Rarum in eo vitium est, etiam in vasto opere, plantam eamdam duobus nominibus repetitam reperire. Varietates non amavit, confusas veterum descriptiones sagax evolvit, et, quæ extricare non poterat, intacta deseruit."

Caspar Bauhin. Born 1560. Died 1624.

Caspar Bauhin, on the other hand, besides improving the nomenclature, and giving proofs of his skill as a botanist in some other valuable works, was author of one in particular, in which he undertook to give an enumeration of all known plants, with the synonymes of preceding writers, accompanied with notes and observations of his own: and by the success which attended his endeavours, he gave a certain form and consistence to the science, and was long after referred to as the guide of his successors. The work itself, which may be considered as an indispensable key to the writings of the older botanists, and was peculiarly serviceable, we are told, even to Linnæus, was the result of forty years labour, and appeared at Basle in 1623, under the title of *Pinax theatri botanici, seu index in Theophrasti, Discoridis, Plinii et botanicorum, qui a seculo scripserant, opera, plantarum fere sex millium nomina cum synonymiis et differentiis.* A Prodromus of it had, however, been published at the same place in 1596, under the title of *Phyto Pinax*. To what has been thus said with respect to the works of the younger Bauhin, we shall only subjoin, for the sake of information, the character given to him as a botanist, contrasted with his brother, by the very competent judge whom we have just now referred to. His words are the following: "Caspar Bauhinus, multis annis fratre suo junior, (anno domum 1560 natus), et in re herbaria æmulus, in Colligendo laboriosus, in iconibus felicior, plantarum numero superior, a discipulis et ab amicis multis omnino symbolis ditior, multo minus acuti vero judicii, in admittendis varietatibus, in repetendis cum diversis nominibus iisdem plantis facilis, in descriptionibus etiam minus accuratis, classium naturalium minus studiosus, in eo mecum in felix, quod tempora sua cum anatome partiri sit coactus."

As to those botanists who were immediately posterior to the Bauhins, or who followed them at a greater distance for the space of more than half a century, it is not necessary that we should enter much into detail. Their labours, though useful, were not in general marked by any peculiar skill, or attended by any very remarkable consequences.

Spigelius. Born 1578. Died 1625.

Adrian Spigelius, a celebrated Italian, who was nearly contemporary with Caspar Bauhin, and had travelled widely through his native country in the disguise of a peasant, that he might have a better opportunity of exploring the vegetable kingdom, published a work of some value, entitled, *In rem herbarium Isagoge*.

Reneaulme.

Paul Reneaulme, a Frenchman, shortly afterwards produced a work of a similar nature, entitled *Specimen Historiæ Plantarum*, in which, besides introducing some good figures, he evinced a very considerable talent for observation and description, taking notice, among other things, of the inequality of the stamens.

Besler. Born 1607. Died 1629.

Basilius Besler, an apothecary at Nuremburg, with the assistance of his brother Hieronymus, wrote about the same time, the *Hortus Eystetensis*, or, An Account of the Plants cultivated in the Bishop's Garden at Aichstaedt in Germany, which, after having been revised by the well-known Ludwig Jungermann, successively professor at Giessen and Altdorf, was published at the expense of the bishop, John Conrad de Gemmingen, in the most splendid style; the descriptions being illustrated by 265 beautiful copperplates.

Jungermann. Born 1572. Died 1653.

Jungermann himself, besides being the editor of the work now mentioned, had the merit of appearing in the character of an original writer: For he composed a catalogue of the plants growing spontaneously round Altdorf, which was first published in 1615, by Caspar Hoffman, an acute and learned contemporary, who made several amendments on it; and afterwards republished, about the year 1646, under his own eye, with the important addition of those plants, among others, which were cultivated at that time in the university garden. He likewise wrote an account of the plants in the district of Giessen, which appeared under the title of *Cornucopiæ Floræ Giessensis, proventu Spontaneorum Stirpium cum Flora Altdorfensi nomine conspirantis:* And to say nothing of his merit in preparing two other catalogues relating to the plants growing round Leipsic and Frankfort on the Mayne, which were never published, he left behind him an *Herbarium* of no less than 2000 dried specimens, which still remains at Altdorf as a proof of his industry.

De la Brosse. A.D. 1628.

In 1628, Guy de la Brosse, physician at Paris, who had lately procured the establishment of the royal garden there, from Louis XIII., produced the first catalogue of the plants growing in it. Seven

Johnson.
Died 1644.
Parkinson.
Born 1567.

years afterwards, John Cornutus, who was also a physician at Paris, published a work, embracing chiefly some account of plants which had been discovered in Canada and the adjacent parts of North America. And about the same time, Thomas Johnson, and John Parkinson, apothecaries, and countrymen of our own, who had in other respects deserved well of the science, completed, each of them, a work of a general nature: That by Johnson, who eventually lost his life in the civil wars, in which he had the command of a company, appeared under the title of *The Herbal, or general History of Plants gathered by John Gerard, enlarged and amended;* and that by Parkinson, (published first in 1640), under the title of *Theatrum Botanicum, or an Herbal of great Extent.* They were both the result of much industry, and formed, in the opinion of the best judges, an extensive and accurate compendium of all that was then known of botany.

Bontius.
A. D. 1642.
Paullus.
Born 1605.
Died 1680.
Piso.
Marcgraf.
Born 1610.
Died 1644.
Hernandez.
A. D. 1651.

In 1642, Bontius, a Dutchman, who had long practised medicine at Batavia, in the island of Java, published a book, entitled *De Medicina Indorum*, containing some account of various medicinal and aromatic plants of that part of the world, accompanied with figures, among which we find, for the first time, a pretty good delineation of the tea shrub. Six years afterwards, Simon Paullus, professor at Copenhagen, a learned and entertaining writer, who had already favoured the world with a peculiar, but able, performance, called *Quadrupartitum Botanicum*, in which plants were distributed alphabetically into four divisions according to the seasons of the year, produced his *Flora Danica*, the rudiment, if we may say so, of those greater works which have since appeared on the botany of Denmark. The *Historia Naturalis Brasiliæ*, of Piso and Marcgraf, a work of considerable information,—and the first catalogue of the plants cultivated in the garden which had been lately founded at Oxford by the Earl of Danby, drawn up by the elder Bobart, were published in the course of the same year. And in 1651, appeared at length, the first European edition of Hernandez's *Natural History of Mexico*, concerning which Dr Haller, in the *Bibliotheca Botanica*, already referred to, expreses himself thus: "Romæ demum anno 1651, edita est Nova Plantarum animalium et mineralium Regni Mexicani historia; non quidem Fernandi longius opus, sed Epitome in x. libros a Nardo Antonio Reccho contracta et Latina versa. Ipsum opus, et icones a Fernando paratæ, in Monasterii Escurialis incendio perierunt. Hoc primum justæ magnitudinis opus Americæ calidioris thesauros Europæis aperuit. Descriptio brevis, et non satis botanica; vires medicæ Paulo fusius traditæ, icones non malæ, non tamen ut characteres specierum agnoscas, nomina Mexicana. Plantæ ipsæ noblissimæ, medicatæ et cornariæ, pleræque ne hoc quidem ævo satis cognitæ. In utilioribus stirpibus Mayz, Aloe, auctor uberior est. Octo primi libri ad rem herbariam pertinent, reliqui ad historiam animalium et minerarum."

Burser.
Loessel.
Born 1607.
Died 1655.
Gotsched.
Grisley.
Elsholz.
Born 1623.
Died 1688.

Of the remaining botanists of this period, extending somewhat beyond the year 1670, which we have already characterised, as one, of the least eventful periods in the history of the science, we may take notice, in passing, of Joachim Burser, a native of Lusatia, and the pupil of Caspar Bauhin, who travelled widely over Europe, and made a very large collection of specimens, which are still preserved at Upsal, where a catalogue of them was drawn up by Peter Martin, about the year 1724, under the eye of Linnæus; of John Loessel, professor at Konigsberg, who wrote a synopsis, or enumeration of the plants growing wild in Prussia, which, though not of any great importance in itself, became eventually the ground-work of a valuable statistical performance, the *Flora Prussica* of Gotsched, his successor in the professorship; of George Grisley, author of the *Viridarium Lusitanicum*; and of John Sigismund Elsholz, physician to the Elector Frederic William of Prussia, who wrote the first catalogue of the plants that are indigenous in the *Mark Brandenburg*, which he published under the name of *Flora Marchica.*

Jung.
Born 1587.
Died 1657.

There is, however, one botanist of this period, whom it would be a matter of injustice in us to pass over slightly; we mean Joachim Jung, a native of Lubeck, who was some time professor at Helmstaedt, and afterwards rector of the academy at Hamburgh, where he died in 1657. The merits of this gentleman, if we look either to the powers of mind evinced by his writings, or the effect which these writings may be supposed to have had on the state of the science, provided they had been more extensively known and attended to, naturally single him out, among his contemporaries, as an object of notice. And we shall therefore not hesitate to quote, at some length, the opinion of two very competent judges with respect to him. Haller, to whose enlightened decision in these matters we have more than once had occasion to appeal, speaking of that part of his work, entitled, *Doxoscopiæ Physicæ Minores*, which treats of plants, expresses himself thus: "Ostendit primus, ut puto, per exempla, arbores a reliquis stirpibus non bene divelli. Refutat discrimina a colore, sapore et odore sumta; præfert ea, quæ repetuntur a foliis. De nominibus critice agit, et multa eorum præcepit, quæ Linnæus repetit. Recta separat cognomines plantas, quarum fabrica diversa est, et in eo studio plurimum laborat, quo tempore nemo de his subtilitatibus quærebat." Speaking afterwards of his *Isagoge Phytoscopica*, a work, which was first edited by Vagetius in 1679, he adds: "Pleno, etsi brevi compendio, novas dat definitiones partium plantæ, et discrimina in quaque parte, ut in folio accurate definit, tum in caule, calyce. Flores nudos distinguit ab iis, quibus calyx est. In flore accuratior est, et plerasque naturales nuperorum classes prævidit, stamina, ante Jungium neglecta, accurate secundum dotes suas omnes contemplatus: sed neque numerum neglexit. Plerosque flores isostemones esse vidit, diplostemones non ignoravit, neque syngenesiam; sic in tubæ, seu styli, numero, fabricam, cornubus curiosus est; flores fructui incidentes et circumpositos, gymnomonospermos aut sexu distinctos minime prætervidit. Meritis ergo suis laudes, debet, quæ passim in eum profunduntur, etiam ex Brittania, in qua plurimum definitionibus Jungianis Rajus usus est." Professor Wildenow, the other botanist referred to, delivering his opinion substantially to the same purpose, says, "In his works he shews a great and extensive knowledge of nature. His remarks on the vegetable kingdom are just; and what he says on terminology, and on

History.

the genera of plants, is done quite in the manner of Linnæus. Had his works been better known, and had he been situated more favourably for acting more at large, botany would perhaps have advanced at his time as far as it is now actually advanced."

Morison. Born 1628. Died 1680.

Plants, as we have before remarked, had been hitherto chiefly treated of in a loose and uncertain way; for the idea of systematic arrangement proposed by Cæsalpinus, may be said to have died with him. Towards the close of this period, however, an attempt was made to revive it by Dr Robert Morison, a native of Aberdeen. This gentleman, having retired into France about the year 1650, after having borne arms as a royalist in the civil wars, was long superintendent of the garden then lately formed at Blois, by Gaston, Duke of Orleans: and on the restoration of Charles the II., being recalled by that prince to England, he was first appointed one of his physicians and botanist royal, with a salary of £200 per annum, and afterwards elected professor of botany at Oxford; in which capacity he died in 1683. While he was in France, he made several botanical journies through different parts of that country at the expence of his patron, which served to enlarge his acquaintance with the vegetable kingdom very considerably: and by improving the opportunities which he enjoyed in a more especial manner, as superintendent of the well furnished gardens at Blois and Oxford, of examining and comparing a great number of plants, both foreign and indigenous, in the various stages of their growth, he became a better judge of their affinities than any preceding naturalist. He had particularly made the fruit a subject of investigation, and being at the same time well acquainted with the use which Cæsalpinus had made of it as a systematic writer, he endeavoured, in the formation of his classes, to improve upon his ideas, and borrowed the more essential characters of arrangement from this part of the vegetable also. His system, of which the professed aim, as we learn from the title of his great work, as well as from what he has said in the preface to it, was to bring plants together, as much as possible, according to their natural affinities, comprehended 18 classes, and was as follows:

Morison's arrangement.

1. Lignosa, arbores.
2. . . . . . frutices.
3. . . . . . suffrutices.
4. Herbaceæ, scandentes.
5. . . . . . . leguminosæ.
6. . . . . . . siliquosæ.
7. . . . . . . tricapsulares.
8. . . . . . . a numero capsularem dictæ.
9. . . . . . . corymbiferæ.
10. . . . . . . lactescentes, seu papposæ.
11. . . . . . . culmiferæ, seu calmariæ.
12. . . . . . . umbelliferæ.
13. . . . . . . tricoccæ.
14. . . . . . . galeatæ.
15. . . . . . . multicapsulares.
16. . . . . . . bacciferæ.
17. . . . . . . capillares.
18. . . . . . . heteroclitæ.

From this outline of Morison's system, it appears, that he set out by distinguishing plants somewhat in the way of Cæsalpinus, according as they are either of a woody or herbaceous texture: and by distributing those of the first division, from their size, into the three classes of trees, shrubs, and under shrubs. The plants of the second division, on the other hand, he formed into 15 classes: of which the characteristic distinctions were taken from the number, figure, and substance of the fruit; the disposition of the flowers; the presence or absence of the downy crown of the seed, termed pappus; the lactescence or milkiness of some plants; the number of the petals; and the habit, port, or general appearance. The fourth class, for instance, was made to consist of those plants which are climbing, and have a pulpy fruit of the berry or apple kind, as passion-flower, briony, and cucumber; the fifth and sixth classes, of those which are pod bearing, the ground of distinction between them being, that the former have a legume or pod, without a partition, as the pea kind, and the latter a siliqua or pod, with a partition, as mustard, and wall-flower; the seventh class, of those which have a tricapsular, or three-celled fruit, and six petals, as the liliaceous, or bulbous rooted tribe; and the eighth, of a variety of plants, which are brought into a sort of arrangement according to the number of cells in the fruit, connected with the number and disposition of the petals. The ninth and tenth classes were made to comprehend the plants with compound flowers; the ground of distinction between them being, that those of the former, which are termed corymbiferous, (their flowers growing in clusters like ivy berries,) as tansy, fever-few, and wormwood, have neither a pappus nor a lactescent stalk; while those of the latter, as hawkweed, dandelion, ragweed, and thistle, have either the one or the other. The eleventh class again was made to include the plants which are denominated culmiferous, that is to say, the grasses, and such as are allied to them, having a single seed in each flower; and the twelfth, those which are called umbelliferous, having two naked seeds joined at their origin, and flowers consisting of five petals, which grow in an umbel; the thirteenth class, those which have a tricoccous, or triple-like capsule, as spurge; the fourteenth, those which have four naked seeds and one petal, as the rough leaved tribe; the fifteenth, those that have several capsules, as pæony, house-leek, and water-lilly; and the sixteenth, those which have fruit of the berry or apple kind, but are not climbing, as deadly night-shade, arum, and cyclemen. The two last classes were formed so as to comprehend what are called the cryptogamic plants; the ferns being referred to the one, and the mosses, flags, mushrooms, and corals, to the other.

Histor

Explana tion of Morisor arrange ment.

Of the method of arrangement thus devised by Morison, some idea was first communicated to the world by him in an enlarged edition of Brunyere's *Hortus Blesensis*, or catalogue of plants growing in the garden at Blois, which he published in 1669. But the work into which he introduced it fully, and in its more perfect form, was his general history of plants, of which the second vol. in fol. (for the first, containing the trees, shrubs, and under shrubs, was somehow never published,) appeared in 1676, during his life time, and the third in 1699, a considerable time after his death, under the care of James Bobart, the gardener's son at Oxford, who had made very great additions to it. The system, however, did not find many, on its becoming known, who were disposed to act upon it; and a little reflection may indeed satisfy any person who understands the principles of arrangement, that it is of too involved a nature, and admits of too great a variety of character, to allow it to be of general use. But whatever may be thought of the merits or defects of the system itself, it will not be denied, that the author did a considerable service to botany as a science, in having brought the subject of methodical distribution again into notice. And as to what concerns his labours in other respects, we may safely add, that while his great work, the *Plantarum Historia Universalis Oxoniensis*, referred to above, was received at first as a highly important acquisition, and is still looked upon as a valuable performance, the treatise which he wrote on the umbelliferous plants, will ever remain a flattering testimony to his powers of discrimination.

terrebech.
ied 1684.
aurice
offman.
enzel.
orn 1622.
ied 1701.

Of the contemporaries and immediate successors of Morison, the greater part did not avail themselves of the advantages of method, but laboured rather to promote the interests of the science in the way hitherto pursued. Francis Van Sterrebech, a clergyman at Antwerp, wrote a treatise of some value on the mushroom tribe. Maurice Hoffman, son of Caspar already mentioned, and successor to Jungermann in the professorship at Altdorf, was author, among other things, of two pretty able statistical surveys, the *Floræ Altdorfinæ Deliciæ Sylvestres*, which appeared in 1662, and the *Montis Mauritiani in Agro Leimburgensium Viciniæ que descriptio Botanica*, which followed in 1694. Christian Menzel, a native of Brandenburg, and physician to Frederic, the First, king of Prussia, a man of great learning, and particularly eminent for his skill in the various languages, besides writing on the flora round Dantzic, and describing some plants which he had gathered in the course of his travels among the Alps and Apennines compiled a pinax in the manner of Bauhin; which was published in 1682, under the title of *Index Plantarum Multilinguis*; the name of each plant being expressed in German, Dutch, French, Spanish, Bohemian, Hungarian, Polish, Danish, and Arabic.

ylberg.
reynes.
orn 1637.
ied 1697.

Peter Kylberg, a Danish botanist, wrote about the same time, on the flora of his native country. James Breynes, a merchant of Dantzic, but of Flemish extraction, who was extremely fond of botanical pursuits, described, in the *Exoticarum Stirpium Centuria*, a work illustrated by accurate and very beautiful plates, which he published at his own expense in 1678, and in the *Prodromus rariorum Plantarum*, which was given to the world after his death, by his son, John Philip, physician at Dantzic, a considerable number of rare plants, which he had either found cultivated in gardens, or had procured through the good offices of his numerous correspondents.

arrelier
[illegible] 1694.

Bocco, or
Sylvius.
Born 1633.
Died 1688.

Jacob Barrelier, a Frenchman, and Paul Bocco, or Sylvius, as he was afterwards called, a Sicilian, the one a Dominican, and the other a Cistertian friar, travelled widely through France, Italy, Switzerland, and the adjacent countries; and thereby at length procured, in the result of their respective researches, a valuable accession of discovery to the science. The work containing the discoveries of Barrelier, was not, indeed, brought before the public till the year 1714, when it was edited from his manuscripts by the celebrated Anthony de Jussieu, professor of botany at Paris, under the title of *Plantæ per Hispaniam et Italiam Observatæ*. But the discoveries of Sylvius, on the other hand, appeared first in the *Descriptiones plantarum rariorum, Siciliæ, &c.* which was published at Oxford, under the care of Dr Morison in 1674; and were afterwards given more in detail, and with important additions, in a work entitled, *Museo di piante rare della Sicilia, Maltha, Italia, e Francia*, which came out under the author's own eye at Venice in 1697.

Olaus
Rudbeck.
Born 1630.
Died 1702.

Olaus Rudbeck, the elder, professor of botany at Upsal, whom Haller styles *Virum vasti ingenii, et in magnis operibus, pertinaciter laboriosum*, besides writing some other things of less moment, employed himself many years, in concert with his son and successor in the professorship, in preparing a work of great labour in twelve folio volumes, which he entitled, *Campi Elysii*. But when it was now on the point of being completed, and a considerable part of it was even ready for publication, he had the misfortune to lose it almost wholly, along with his *Herbarium*, and about 10 or 11,000 elegant cuts, in the fire that, in 1702, laid that city in ashes; a circumstance which appears to have hastened his death, as that event took place within a few months after.

Drakenstein.
Born 16[illegible]
Died 1691.

Henry Van Rhude Van Drakenstein, a gentleman who has a claim to be mentioned with particular honour among the botanists of this period, availed himself of his situation and influence as governor of the Dutch settlements in the East Indies, to collect a great many rare plants of that part of the world, and especially of the Malabar coast, where he had his principal residence. Of these he procured very beautiful drawings by the first artists whom he could find in India; and having at the same time spared no trouble or expense to get them accurately examined, and to ascertain what was known to the natives with regard to their medicinal and œconomical uses, he returned at length to Europe with the design of laying the fruit of his labours before the world in a style of magnificence worthy of the subject. On his arriving and settling in his native country, accordingly, he submitted his own manuscripts, and those of his Indian assistants, to the inspection of men of ability, whom he employed as editors; and with their aid he succeeded so well, that between the year 1676, and the time of his death, in 1691, he was enabled to publish ten folio volumes, and two more being added shortly afterwards, completed his design, and thereby put the world in full possession of the *Hortus Malabaricus*, a work on exotic botany, which, if we look either to the information contained in it, or to the singular elegance and accuracy of the plates by which it is illustrated, is perhaps the most splendid and valuable which has hitherto appeared.

John
Commelyn.
Born 1629.
Died 1692.

John Commelyn, professor of botany at Amsterdam, besides drawing up a catalogue of the flora of Holland, and taking a principal share in conducting the publication of the preceding work, by furnishing it with synonymes and a commentary, pursued otherwise nearly the same course of study with Van Rhude, its author; for he added, like him, to the knowledge of exotic plants, by describing in the *Hortus Amstelodamensis*, a considerable number which were at that time cultivated in the botanical garden there, and which the extensive connection of his countrymen with the East and West Indies had enabled him to procure.

Paul Herman.
Born 1640.
Died 1695.

Dr Paul Herman, a native of Saxony, contributed likewise to promote the same object. For in consequence of a long residence in Ceylon, and afterwards at the Cape of Good Hope, as a physician, he had an opportunity of making a very large and valuable collection of rare plants, which he brought with him to Leyden, where, on his return to Europe, he became professor of botany. Of these, part were enumerated in his catalogue of the plants growing in the botanical garden at Leyden: Others were described in the *Paradisus Batavus*, a work edited by Sherrard, in 1698, which had been designed to contain an account of many unknown plants of different countries, accompanied with plates, but which the author did not live to complete.

Sherrard.

And, to say nothing of a multitude of specimens which he left behind him, without being able to make any use of them, those which he gathered in Ceylon, more particularly, were first described by himself in the *Museum Zeylanicum*, another posthumous, and therefore incomplete publication, but illustrated with beautiful engravings; and have since that time been ably characterised by Linnæus, into whose hands they came along with the original plates, in his *Flora Zeylanica*.

Caspar Commelyn.
Born 1667.
Died 1731.

With the names of the three preceding botanists, we may here connect that of Caspar, nephew of John Commelyn, and successor to him in the professorship at Amsterdam; for, although a little posterior to them, he directed his attention chiefly to the same department of botanical knowledge; and is known, both as the author of the *Floræ Malabaricæ*, or General Index, to the *Hortus Malabaricus*, and as the editor of the second volume of his uncle's great work, the *Hortus Medicus Amstelodamensis*.

Plunkenet.
Born 1642.
Died 1706.

Nor can we forbear to mention, with due praise, the more diversified and indefatigable industry of Dr Leonard Plunkenet, physician in London, and inspector of the Royal Garden at Hampton Court, who died in 1706; for by gathering from every quarter, he became possessed of many plants, both foreign and indigenous, which were not known to any other botanist of his time. His *Herbarium* is even supposed to have consisted of no less than 8000 specimens; and of these, part were described by him in various publications, which evince great industry, but in which it is a matter of regret that, from his want of systematic skill, he did not turn his materials to the best account.

Petiver.
Died 1718.

James Petiver, an opulent merchant of London, and Fellow of the Royal Society, who was nearly contemporary with Plunkenet, and a great lover of natural history, published also a good deal on plants, but with a similar defect of method: and to say nothing of the labours of some others, Rodolf Camerarius, professor at Tubingen, a man of no ordinary genius, who was born in 1665, and died in 1721, was engaged, about the same time, in making the first experiments on the sexes of plants.

Rodolf Camerarius.
Born 1665.
Died 1721.

"Experimenta fecit," says Haller, "in floribus Ricini et Mayz; et semina detractis staminibus sterilescere reperit, ut omnino in antheris sexum masculum posuerit. Plantas masculas feminas, et androgynas constituit, has numerosissimas."

While, however, the greater part of Morison's contemporaries, and of those who succeeded him, for the space of about thirty years, were thus advancing the interests of botany in the less scientific way of their predecessors, as above stated, there were a few of them, and these, too, of no uncommon fame, who, in pursuing the same object, endeavoured, like Morison, to combine the advantages of method with discovery.

Herman
method.

Herman, for instance, whose merits in another respect, we have just now taken notice of, contrived a system, which was made known to the public in 1696, a year after his death, by Zumbac, having the fruit and flower, and occasionally the external appearance, for its basis. It does not appear that he acted on it himself, and we have accordingly rather classed him with those who did not take advantage of method; but the plants in the academical garden at Leyden, were arranged according to it by his successor in 25 classes; four of them being made to consist of trees, and the rest of herbs, which were again distinguished under the threefold division of herbs with naked seeds, herbs with seed-vessels, and herbs with petals: And this was the beginning of systematic botany in Holland.

Quirinu
Rivinus.
Born 16
Died 17

Another botanist of this period, who studied, in advancing the science, to unite the advantages of method with discovery and description, was Augustus Quirinus Rivinus, professor at Leipsic, where he died in 1722. This gentleman, who appears from his writings, to have possessed an original and superior way of thinking, conceived the design of preparing and publishing a series of engravings illustrative of all the known species of plants, accompanied with short descriptions; and by way of introduction to the accomplishment of it, he submitted to the public, in 1690, a method of his own contriving, which he purposed to follow in the distribution of them. Before his time, it had been the aim of all systematic writers to follow nature, and to arrange plants, as much as possible, according to their affinities; a circumstance which, though it doubtless gave a more pleasing cast to their systems, made them at the same time less easy in practice, from the multiplication of character.

Rivinus' arrangement.

Quirinus perceived this; and being of opinion that an arrangement purely artificial would answer the purpose better, "he renounced the pursuit of affinities, and was the first," to use the language of Mr Milne, "who set about a method, which should atone, by its facility, for the want of numerous relations, and natural families." Instead of the fruit, which had been hitherto used, and which possessed less variety, he made choice of the flower, as the ground-work of his system; and neglecting the hackneyed distinction of trees and herbs, as marring the uniformity of his plan, he distributed all plants into 18 classes, the characters being taken from the number and regularity of the petals. His system was as follows:

Flores Regulares.

1. Monopetali.
2. Dipetali.
3. Tripetali.
4. Tetrapetali.

5. Pentapetali.
6. Hexapetali.
7. Polypetali.

Flores Compositi.

8. Ex flosculis regularibus.
9. Ex flosculis regularibus et irregularibus.
10. Ex flosculis irregularibus.

Flores Irregulares.

11. Monopetali.
12. Dipetali.
13. Tripetali.
14. Tetrapetali.
15. Pentapetali.
16. Hexapetali.
17. Polypetali.
18. Flores incompleti.—Imperfecti.

The subdivisions, to the number of 91, were founded on the character of the fruit, according as it is naked or contained in a seed vessel, the latter being farther distinguished according as it is dry or fleshy. Proceeding upon this method, which, though difficult in practice, from the variations in the flower, is, of all others, the most simple. Rivinus, agreeably to his original design, prepared a series of very excellent engravings, accompanied with short characters, part of which were published the same year, part in the following, and part in 1699. Being however unequal to the expense of such an undertaking, he was at length obliged to desist, without being able to illustrate more than the plants with irregular monopetalous, irregular tripetalous, and irregular tetrapetalous flowers; and to finish plates, which were not however used till a considerable time after his death, for those of the irregular hexapetalous order. The system, thus imperfectly acted upon by the author himself, was fully introduced by Heucher into his *Hortus Wittenbergensis*, in 1711, and was afterwards adopted by many of the German botanists; and we may be allowed to add, that whatever may be thought of it in other respects, it has the merit of originality, and may be considered as the first specimen of a purely artificial system.

Knaut.

Magnol.

Along with Rivinus, we might have here taken some notice of Christopher Knaut, a German, author of an Enumeration of the Plants growing naturally round Halle, in Saxony; of Peter Magnol, professor at Montpelier, author of the *Botanicum Monspeliense*; and of one or two other writers of inferior note, who were advocates for system. But without enlarging on what concerns their histories, we rather hasten to observe, that the two systematic botanists of this period, who deservedly rose superior to all their contemporaries, and whose various and enlightened labours had by far the most extensive and lasting effect on the state of the science, were Ray and Tournefort. They were both men of very eminent talents, and indefatigable industry.

hn Ray.
orn 1628.
ied 1705.

John Ray, our countryman, not less known for his piety and amiable manners, than his learning, in which he excelled all preceding botanists, was born at Black Notely, in Essex, in 1628. After passing through a course of preparatory study in Trinity College, Cambridge, he took orders in the church, and was some time settled as a clergyman in his native county: but having resolved to gratify his thirst for information by travelling, he resigned his living about the time of the Uniformity Act, which we are told was disagreeable to him, and afterwards spent some time in visiting different parts of Great Britain, France, Germany, Sweden, and Italy, where he paid the greatest attention to all natural productions, and particularly to plants. He had already begun to shew himself in the character of an author, by publishing, in 1660, while he was yet a resident in Essex, a catalogue of the plants growing naturally round Cambridge, digested in the order of the alphabet; and in 1670, some time after his return from the Continent, having added much to his previous knowledge of the Flora of England, by repeated excursions through various parts of it, he proceeded to publish a work on a larger scale, entitled *Catalogus Plantarum Angliæ, et insularum adjacentium, tunc Indigenos, tunc in agro cultas comprehendens.* Three years afterwards he favoured the world with his *Topographical, Moral, and Physiological Observations*, made in the course of a journey through the low countries, Germany, Italy, France, containing, among other things, an account of many plants gathered by him, which are not indigenous, or, at least, which were known at that time to be indigenous in England; and having thus committed himself to the public, both on the subject of native and foreign botany, he continued through life to make it his leading object to render what he had begun as perfect as possible. In 1688, accordingly having now extended his excursions into the more distant parts of our island, and discovered a great many new plants, especially in Scotland, he published an Appendix to his English Flora; and two years afterwards he republished the whole, with an account of 250 additional plants, under the title of *Synopsis Methodica Stirpium Britannicorum*, regard being had in it, as we shall have occasion to remark shortly, to the first edition of his system. Nor was he less diligent in the mean time in gathering materials from all quarters, to augment his catalogue of exotics; for besides extracting whatever was to his purpose from the writings of the older botanists, he availed himself of the discoveries of his contemporaries duly as they came before the public, and was thus at length enabled to give it to the world, in 1694, in a very enlarged form, under the title of *Sylloges Plantarum extra Britanniam Nascentium.*

The work, however, by which Ray evinced at once the immense extent of his learning and research, and conferred the most signal advantage on the science, was his *General History of Plants*, which may be considered as a systematic enumeration, accompanied with descriptions and remarks, taken chiefly from the authors whom he had consulted, of the plants mentioned in the preceding synopsis, together with such as were discovered down to 1704, the year before his death, amounting on the whole to no less than 18,655 species and varieties. The first vol. in fol. appeared in 1686, the second in 1688, and the third, embracing the later discoveries of Rheede, Herman, Sylvius, Plumier, Camellus, Tournefort, and others, in 1704, the year above referred to; and were justly received by the world as constituting the most learned, judicious, and elaborate history of the vegetable kingdom, which had hitherto been offered to them.

Having said thus much with regard to the labours and merits of Ray in other respects, we now add, that the improvements which he tried to introduce into the science of botany, as a systematic writer, were not the least interesting part of the service which he rendered to it. In his earlier publications, he had adopted no better mode of arrangement than what had been commonly followed before his time, the order of the alphabet. But as it is natural to suppose that a man of his luminous understanding could not advance far in his multifarious labour, without seeing the necessity of introducing some more scientific method, so we find, that on the publication of Morison's system, his thoughts, which had been already occasionally occupied with the subject, were turned to it with still greater interest. And two years after, that is in 1682, he accordingly ventured to propose a system in the manner of Morison, whom he acknowledges as his leader, having the fruit, flower, and external appearance, for its basis, and comprising 25 classes, which were as follows;

Ray's arrangement.

1. Arbores.
2. Frutices.
3. Herbæ imperfectæ.
4. . . . . flore carentes.
5. . . . . capillares.
6. . . . . staminæ.
7. . . . . semine solitario.
8. . . . . umbelliferæ,
9. . . . . verticillatæ.
10. . . . . asperifoliæ.
11. . . . . stellatæ.
12. . . . . pomiferæ.
13. . . . . bacciferæ
14. . . . . multisiliquæ.
15. . . . . monopetalæ uniformes.
16. . . . . difformes.
17. . . . . tetrapetalæ siliquis majoribus.
18. . . . . siliquis minoribus.
19. . . . . papilionaceæ.
20. . . . . pentapetalæ.
21. . . . . cerealia.
22. . . . . gramina.
23. . . . . gramineæ.
24. . . . . bulbosæ.
25. . . . . bulbosis affines.

This method, however, he continued for many years, while he was engaged in preparing his great work, the *General History of Plants*, to alter and improve, so as to give it quite a new form: and in 1700 he at length published his corrected edition of it, which was made to comprehend all plants, in 33 classes; 27 of them being composed of herbs, and the rest of trees, in the following manner:

1. Herbæ submarinæ.
2. . . . . fungi.
3. . . . . musci.
4. . . . . capillares.
5. . . . . apetalæ.
6. . . . . planipetalæ.
7. . . . . discoideæ.
8. . . . . corymbiferæ.
9. . . . . capitatæ.
10. Herbæ solitario semine.
11. . . . . umbelliferæ.
12. . . . . stellatæ.
13. . . . . asperifoliæ.
14. . . . . verticillatæ.
15. . . . . polyspermæ.
16. . . . . pomiferæ.
17. . . . . bacciferæ.
18. . . . . multisiliquæ.
19. . . . . monopetalæ.
20. . . . . di-tripetalæ.
21. . . . . siliquosæ.
22. . . . . leguminosæ.
23. . . . . pentapetalæ.
24. . . . . floriferæ.
25. . . . . staminæ.
26. . . . . anomalæ.
27. . . . . arundinaceæ.
28. Arbores apetalæ.
29. . . . . fructu umbilicato.
30. . . . . non umbilicato.
31. . . . . sicco.
32. . . . . siliquoso.
33. . . . . anomalæ.

From this synoptical view of Ray's method, it will be seen, that he derived the characters of his classes, generally speaking, from the habit of plants; their greater or less degree of perfection; their place of growth; the number of their seed-lobes, or seminal leaves, petals, capsules, and seeds; the situation and disposition of their flowers, flower cup, and leaves; the absence or presence of the buds, flower cup, and petals; the substance of the leaves and fruit; and the difficulty of classification in certain cases, where there is a want of allied character.

The first four classes of the herbs being what he termed *without flowers*, were made to consist of submarine plants, including corals, and of the mushrooms, mosses, and ferns. The remaining 21 classes of the herbs being what he termed *flower bearing*, were again subdivided according to the number of the seed lobes, or seminal leaves, the plants of the first 19 being denominated dicotyledones, and those of the two following monocotyledones. The fifth class being the first of the dicotyledones division, was made to consist of such plants as are without petals, as glasswort pellitory, plantane, and nettle; the sixth was made to consist of such as have compound ligulate, or strap shaped flowers, as hawk weed, and nipplewort; the seventh and eighth, of such as have compound radiant flowers, the ground of distinction being, that the seed in the one case is crowned with a pappus, as in starwort, and ragweed,—and in the other, is without it, as in feverfew, and ox eye; the ninth, of such as have compound flowers, swelling out in the manner of a head, as thistle, and burdock; the tenth, of such as have one naked seed under each flower, as valerian, and fumatory; the eleventh and twelfth, of such as have two naked seeds, those of the former being what are known by the name of the umbelliferous, as hemlock,—and those of the latter by the name of the stellatæ, or star like plants, as woodsroof, and ladies bed straw; the thirteenth and fourteenth, of such as have four naked seeds, the ground treasure which he set most value on, to Paris, the natural place of resort to genius and science; and venturing, on his arrival, to introduce himself to Crescentius Fagon, at that time physician to the queen, and professor of botany, he soon contrived to recommend himself so much to his notice that he was placed, in the course of the year 1683, over the royal garden as his substitute; and proceeded from that moment to discharge the duties of his office with unbounded applause.

Having at length established his reputation, and shewn, by a display of superior ability, that he was capable of not merely justifying, but of going far beyond the opinion which had been formed of him; he was sent, in 1688, by the recommendation of his patron, at the king's expence, into Spain and Portugal, and afterwards into Great Britain and Holland, on journies of discovery. And in these, his success was so great, that, besides augmenting his own knowledge very much, he was enabled, on his return, to enrich the garden with a large and valuable accession of plants.

In 1692, he had the honour of being elected a member of the Academy of Sciences; and his fame continuing in the mean time to spread in consequence of the publications which we are to notice hereafter, he was, in 1693, admitted unanimously, and with the most gratifying tokens of respect and approbation, into the faculty of physicians at Paris.

Two years afterwards, he set out from the east on a voyage, which, like his preceding travels, was undertaken by the order and at the expence of Louis XIV.; for in the dedication of the Latin version of his *Institutions* to that monarch, a little before he set out, we find him saying beautifully enough, but with some mixture of flattery, "Jussu hoc Alpium juga, Pyrenæarum saltus, Hispaniæ recessas, ericata Lusitaniæ, Britanniæ colles, et Belgii prata peragravi; plantarum genera formasque inspexi; vires et potestates exploravi, ne quid, quod salutiferum homini foret, posset te regnante præteriri. Et quoniam tot peregrinationibus meis, fortuna tua non unprosperos exitus dedit, alias mihi subinde, et multo remotiores infungis, ut nulla pars terrarum expers sit tuæ singularis in populos tibi commissos curæ, atque Gallorum vel saluti, vel gloriæ Orientalis etiam plaga deserviat." In this scientific mission he was accompanied by Dr Andrew Gundelsheimer, a very zealous German botanist, whose herbarium is still preserved at Berlin, where he founded the public garden; and by a French draughtsman of great eminence, named Claude Aubriel: and, so extraordinary was the diligence which he used during the two years he was with them in the east, that he not only traversed the Grecian Archipelago and Thrace, but the shores of the Euxine Sea and the northern districts of the Lesser Asia, as far as the confines of the Persian empire; and then returned by a different route through Galatia, Mysia, and Lydia, to Smyrna; and from thence, home: being only prevented from visiting Egypt and Syria by what he had heard of the prevalence of the plague in them.

On his settling again at Paris, he was raised to the dignity of knighthood; both as a reward of past merit, and an incentive to future exertion; and being at the same time honoured with an ample fame, the correspondence of the most eminent among his contemporaries, as well as placed in a favourable situation, he set himself with becoming zeal, to arrange the vast stock of materials which he had collected, and turn his knowledge to some good account.

Unfortunately, however, while he was thus enjoying the most flattering prospect of still greater honour and usefulness; and had even gone far, we are told, in preparing some valuable works for the press, an accident happened which cut short the period of his life, and deprived the world of what they had a right to expect from his well proven abilities: For, as he was one day passing along a narrow street in Paris, he was thrown against a wall by the impulse of a waggon, or some other carriage in rapid motion, with such violence, that blood immediately gushed from his mouth; and the contusion having at length terminated in consumption, he was carried off by it in the course of a few months after, in the year 1708.

Such were the general features in the life of Tournefort, as a traveller and practical botanist; but in order to our having an adequate idea of his merit, we must farther attend to him, for a little, as a writer. His premature death, as we have just now remarked, prevented him from laying the valuable result of his researches before the world to the extent which he had designed; so that, with the exception of some papers in the *Memoirs of the Academy of Sciences*, and his *Voyage to the Levant*, which is a miscellaneous publication, we have only two works of his which are entitled to notice; the *Histoire des Plantes, qui naissent aux environs de Paris, avec leur usage dans la Medicine*, which was published in 1698; and his *Institutions*, which appeared first in French, in 1697, under the title of *Elemens de Botanique, ou Methode pour connoitre les Plantes*, and afterwards in Latin, in 1700, under the title of *Institutiones rei Herbariæ*.

With respect to the first, we need only observe, that though it contains descriptions of several new plants, and is otherwise characterised by the author's usual ability and accuracy, it was chiefly designed to facilitate the study of botany among those who attended his lectures. The second, however, which requires to be more particularly noticed, as being the work which established his fame, and procured him long a sort of empire over this department of science, was published with the view of introducing no less than a completely new and universal plan of arrangement and reform.

Tour-
fort's
range

The method which he adopted in it, and according to which he distributed all the species of plants which were then known, together with part of his own discoveries, had the form of the corolla for its principle. It admitted a distinction between trees taken in connection with shrubs, on the one hand, and undershrubs and herbs on the other; and comprehended 22 classes, which were as follows.

Herbæ et Suffrutices.

1. Floribus monopetalis campaniformibus.
2. . . . . . infundibuliformibus et rotatis.

3. Floribus anomalis.
4. . . . . . monopetalis labiatis.
5. . . . . . polypetalis cruciformibus.
6. . . . . rosaceis.
7. . . . . umbellatis.
8. . . . . caryophyllæis.
9. . . . . liliaceis.
10. . . . . papilionaceis.
11. . . . . anomalis.
12. . . . . . flosculosis.
13. . . . . . semiflosculosis.
14. . . . . . radiatis.
15. . . . . . apetalis et stamineis.
16. Qui floribus carent et semine donantur.
17. Quorum flores et fructus conspicui desiderantur.

Arbores et Frutices.

18. Floribus apetalis.
19. . . . . . amentaceis.
20. . . . . . monopetalis.
21. . . . . . rosaceis.
22. . . . . . papilionaceis.

From this synopsis of Tournefort's method, it will be seen at once, that the characters of his classes were derived in the most simple manner, from the presence and form or absence of the corolla; and we may gather from his work, that he was led to prefer this principle of distribution, though a good deal artificial, from the facilities which it afforded of readily distinguishing one plant from another: for while we find him, after some discussion to this purpose, laying it down as his first maxim, in systematic botany, that classes are to be established on the flower alone, we find him adding, with respect to those methods which had been proposed before his time, and which generally aimed at being agreeable to the order of nature, "Studiosos enim, ex quo Parisiis doceo, has addiscere non posse neque iis uti ad plantas extempore dignoscendas, nisi intra spatium plurium annorum sæpenumero cognovi." As to the classes themselves, it will be seen, that of the 17 comprising the herbs and undershrubs, the 4 first were made to consist of such as have a monopetalous corolla, the ground of distinction between them being, that the corolla, in the first case, is bell shaped, as in deadly night shade and bell flower,—in the second, funnel or wheel shaped, as in auricula, viper's grass, borage, and loosestrife,—in the third, of various forms, and such as cannot be brought under any one denomination, as arum and foxglove,—and in the fourth, lipped or gaping, as in balm, sage, and lavender.

The seven following classes were made, on the other hand, to consist of such herbs or under shrubs as have a polypetalous corolla,—those having it in the form of a cross, as cabbage, shepherd's purse, and lady's smock, being comprehended in the 5th class,—those having it in the form of a rose, as poppy, water lily, hellebore, and pæony, in the 6th,—those having it rosaceous, but disposed in the mode of a parasol or umbel, as parsley, hemlock, and lovage, in the 7th,—those having it pink-like, the claws of the petals being universally long, as carnation, lychnis, and sea pink, in the 8th,—those having it in the form of a lily, as tulip, and hyacinth, in the 9th,—those having it papilionaceous, or butterfly-like, as the pea kind, in the 10th,—and those which cannot well be reduced under any one denomination, in the 11th. The three next classes were made to consist of such herbs and under shrubs as have compound flowers, that is several monopetalous florets included in the same flower cup,—those of the 12th class being distinguished by their florets being all tubular, as thistle, burdock, and centaury,—those of the 13th, by their florets being all ligulate, as dandelion, goat's beard, and succory,—and those of the 14th by their florets being tubular in the centre or disk, and ligulate in the circumference or ray, as starwort, ragweed, bear's foot, and golden rod. The three last classes of the herbs and under shrubs were formed so as to comprise such as are without petals,—those having stamens, as blite, pellitory, and the grasses, being included in the 15th,—those having no evident stamens but evident seeds, as the fern tribe, in the 16th,—and those having neither evident stamens nor seeds, that is to say, the mosses, mushrooms, or sea weeds, whose parts of fructification were not then detected, so far as they are now, in the 17th.

Of the five remaining classes, comprehending the trees and shrubs, the 18th was made inversely to consist of such as are apetalous, as the ash, box, and fig,—the 19th, of such as have their flowers disposed in a cathin, or elongated scaly receptacle, as the hazel, and alder,—the 20th, of such as have a monopetalous corolla, as jasmine, liliac, and holly,—the 21st and 22d, of such as have a polypetalous corolla, the ground of distinction between them being, that the corolla, in the one case, is rose-like, as in the orange, apricot, and cherry; and in the other, is papilionaceous, as in broom, acacia, tamarind, and laburnum.

The subdivisions or orders, to the number of 122, were established chiefly, we may add, by characters taken from the pistillum and the fruit.

Such was the celebrated system of Tournefort; a system which had no sooner been made public, than it was received almost every where on the Continent with marked approbation, and began to shew itself immediately in the happy effects which it had on the labours of his contemporaries: Nor did it cease for many years to be the most prominent; and was at length only eclipsed and allowed to fall into disuse, through the superior merit of the Linnæan method.

Great however as were the advantages arising from the system of Tournefort, it was not even in this way that he did most service to the science, or gained his best claims to the gratitude of posterity. That distinguished botanist introduced, in another respect, a new æra in the history of arrangement. Before his time plants had been, for the most part, described merely as species, or at best as species distributed into comprehensive classes and sections upon some general principle. Tournefort perceived the advantage of adding a new step in the process, and of forming them into intermediate groupes, and adopted an idea long ago thrown out by Gesner, and recommended by Fabius Colonna, a celebrated Italian, who died in 1648. He accordingly proceeded to make use of characters, taken from the flower and fruit, and occasionally, though seldom, from other parts of the plants, for the formation of genera, upon a very extensive scale. The improvement which he thus introduced into the science appeared so considerable, that it was immediately adopted generally by his contemporaries, and has been gratefully acknowledged ever since. And an author, whose opinion should have great weight, has lately expressed himself on the subject, in the following manner: "The first great and successful attempt to define the genera of plants, was made by Tournefort; and in this his transcendant merit will ever be conspicuous, though his system of arrangement should be entirely forgotten. Not that he has excelled in herbal definitions, nor built all his genera on sure foundations; but his figures, and his enumerations of species under each genus, show the clearness of his conceptions, and rank him as the father of this branch of botany."

Plumier.
Born 1646.

The science having been thus put upon a better footing, in consequence of the ideas of method suggested by the botanists just now mentioned, and at the same time enriched by the fruit of their labours, began to be cultivated with still greater interest. Father Plumier, a native of Marseilles, adopting the system of Tournefort, with whom he was contemporary, made three voyages to America and the West Indies, in order to examine the animal and vegetable productions of these parts: and so well did he accomplish the object which he had in view, that, besides leaving behind him a numerous collection of plants, drawings, and MSS. which are still preserved in the national library at Paris, he had an opportunity, during his lifetime, of favouring the world with several excellent publications, the last of which, on the filices or ferns of America, is still regarded as the best on the subject.

Sir Hans
Sloane.
Born 1660.
Died 1753.

Hans Sloane, an Irishman, but of Scotch extraction, who had studied medicine in France, and was at a later period of his life created a baronet, and raised to the presidency of the Royal Society, in compliment to his merit, made a voyage to the same quarter, in capacity of physician to the Earl of Albemarle, governor of the British West Indian islands. Availing himself of the opportunity given him by the Earl's touching at Madeira, Barbadoes, Nevis, and St Christophers, he collected several plants of these islands; and on his arrival at Jamaica, he laboured with so much zeal to procure and discover specimens, that on his return to Europe, three years afterwards, he brought along with him an herbarium of no less than 800. These he first enumerated, with the addition of their synonymes, in a catalogue which was published in 1696, and afterwards described and illustrated with plates in the order of Ray, in his *Natural History of Jamaica*, the first vol. of which appeared in 1707, and the second in 1727. Nor can we forbear to add, that this very eminent naturalist, who was a lover and patron of science in all its branches, and distinguished by a peculiar suavity of manners, continued through the course of a long life to foster merit, and to gather from all quarters whatever was curious, or tended to throw light upon the animal and mineral, as well as the vegetable kingdoms. This invaluable collection, together with his library, he bequeathed at his death, which took place in 1753, to the British Museum, to be kept in trust for the use of the public.

Feuillée

Louis Feuillée, too, a Franciscan friar, and member of the Academy of Sciences, a man of superior abilities, having gone a few years after Sloane to the same part of the world, travelled long, at the expence of the king of France, in the West Indies and South America. The object of his laborious and widely extended researches there, was no doubt very much physical and mathematical; but he also paid a great deal of attention to the vegetable kingdom, collecting many plants which were unknown at that time in Europe, in the course of his travels, more especially along the maritime districts of Chili and Peru. And by communicating his discoveries to the public in 1714 and 1725, in a register of his proceedings entitled, *Journal des Observations Physiques, Mathematiques et Botaniques, faites par ordre du Roi, sur cotés Occidentales de l'Amerique Meridionale*, &c. he contributed not a little to what was then known of the flora of the western hemisphere.

Kæmpf
Born 16
Died 17

On the other hand, a good deal was done about the same time towards illustrating the botany of the East, by Englebert Kæmpfer and John Christian Baxbaum, natives of Germany. Kæmpfer, who was of the country of Lippe, and had evinced from his infancy the most insatiable thirst for every sort of physical knowledge, travelled ten years; first in the train of the Russian ambassador going to Persia, and afterwards by himself, through Russia, Persia, Arabia, the peninsula of India, Siam, Java, Sumatra, and Japan. In the course of these travels, particularly in the island of Japan, where he spent two whole years, he made very extensive discoveries, and procured a vast fund of information; being, as Haller informs us, "Ad omnem laborem impiger, neque sibi parcens, quoties veri detegendi spes erat." He likewise possessed, in a very eminent degree, a talent for delineation. He was enabled to enrich his collection with many beautiful drawings. But it is a matter of deep regret, that on his return to his native country, where he continued to practise as a physician till his death in 1719, he was prevented, either by want of encouragement, or some other cause which we are not able to explain, from gratifying the public to the extent which might have been expected, with the fruit of his researches. A valuable work, containing part of them, was indeed published by himself, under the title of *Amœnitates Exoticæ* in five Fasciculi; and within these twenty years, Sir Joseph Banks, who has long appeared to such advantage as the patron of science, has favoured us with select plates, taken from the originals in the British Museum, representing a considerable number of plants, which he had collected and delineated in the island of Japan. But the sixth Fasciculus of his great work, embracing some account of the plants growing beyond the Ganges, with 500 figures, and almost every thing else in his invaluable treasury, which he had designed for publication, have disappeared, and are, we have reason to fear, irrecoverably lost.

Baxbau
Born 1
Died 1

Baxbaum again, who was of Mersburg in Saxony, and had already written a pretty good enumeration of the flora round Halle, accompanied the Russian ambassador Romanzoff, on the recommendation of the celebrated Dr Frederick Hoffman, to Constantinople; and from thence extended his botanical surveys over a considerable part of the surrounding countries; traversing Pontus and Armenia, more especially, on the one hand, and Greece, with the adjoining islands, on the other. The world, however, did not reap all that advantage which might have been anticipated from his abilities, as he died prematurely in 1730; having only published descriptions of three centuries of the plants discovered by him. Descriptions of two more, it is true, were edited from his MSS. some time after his death by John G. Gmelin, whom we shall have occasion to mention shortly; but, to pass over other disadvantages arising from his premature fate, those of the sixth century, which he had also in a state of forwardness, were never made public.

William Sherrard. Died A. D. 1731.

Having said thus much as to the attempts at discovery which were made about this time in the East, we cannot quit the subject without adding, that a tribute of no ordinary praise is due to the memory of our countryman, William Sherrard, a native of Bushby in Leicestershire; for though he did not live to complete the only work of importance which he undertook, *A Continuation of Bauhin's Pinax*, and otherwise published little on botany, yet no man of that age exerted himself so much, without regard to expence, in collecting plants of every description. A long residence at Smyrna, as British consul, and the use of a well-stored garden, which he laboured daily to improve, gave him peculiar advantages in obtaining and preserving the most perfect specimens of such as were indigenous in the eastern countries: and so well did he employ his influence in other respects, that he became at length the possessor of an Herbarium, containing no less than 12,000 species, which he left at his death, together with a valuable collection of drawings, to the university of Oxford. His brother James, physician in London, who died in 1737, six years after him, was likewise fond of botanical pursuits, and established the well known garden at his country-seat at Eltham in Kent, which supplied the materials of that splendid work of Dillenius, the *Hortus Elthamensis.*

nes Sherd. Died D. 1737.

pp.

erhaave. rn A. D. Died D. 1738.

Celsius.

While the science was thus advancing in consequence of the travels and researches of botanists in foreign parts, Henry Bernard Rupp, a native of Giessen, and student at Jena, who had traversed many parts of Germany with incredible zeal, lodging often in the meanest cottages, and subsisting on the most homely fare, wrote the *Flora Jenensis*, in which he gave some account of his discoveries, and constituted several new genera, on the principles of Rivinus. The great Boerhaave, professor at Leyden, alike celebrated throughout Europe as a physician and a naturalist, besides proposing a new system of arrangement, founded chiefly on that of Herman, contributed to throw some light on exotic botany, by describing, with his usual ability, several rare plants which were cultivated under his direction in the university garden. Olaus Celsius, professor of divinity at Upsal, a man of great erudition, and the future patron of the far-famed Linnæus, who also published a catalogue of the flora round Upsal, was engaged in preparing the *Hierobotanicon*, a work illustrative of the plants mentioned in scripture, which is hitherto unrivalled by any other on the subject. The two Scheuchzers of Zurich also acquired great fame; John James, who was professor of mathematics, by his journies through the Alps, which he crossed no less than nine times in various directions, ascending to their highest peaks; and John, the younger brother, who was a physician, by his very elaborate and accurate discrimination and descriptions of the grasses. The former gave the world some account of his labours and discoveries in his *Itinera Novem per Alpinas Helveticæ regiones*, published at different times: the latter in his *Agrostographia, seu Graminum, Juncorum, Cyperorum, Cyperoidum iisque adfinium Historia*, published in 1719; of which we may say, with his countryman Haller, so often referred to, "Immensi laboris opus, et hactenus sine pari est. Difficilis classis species omnes minutissime descripsit, characteres extricavit, plurimas depictas dedit, et ab integro novam historiam molitus est. Plurimas species ipse detexit in Rhætia et circa Tigurum, alias ab amicis, etiam ex India Orientali habuit, alias ita definivit, ut nunc adgnosci possunt. Confusam, etiam apud Tournefortium, graminum farraginem, in classes, genera, species solicite distribuit: Genera fere quadringinta descripsit." Nor can we forbear to add with him, on the other hand, "Non recusabo equidem, varietates inter genera reperiri, quod eo frequentius, apud quemque botanicorum, auctorem reperitur, quo studiosius ipse plantas legerit. Neque methodum ubique laudavero, quæ primum hic, post leviora Raii tentamina, constituitur. Id potissimum incommodum est, quod cum longis descriptionibus essentialia signa seorsim non definiverit, ex quibus quæque planta adgnoscitur. Synonyma etiam pauciora addidit."

John James Scheuchzer. Born A. D 1672. Died A. D. 1733.

John Scheuchzer.

Vaillant. Born A. D. 1669 Died A. D. 1722.

Sebastian Vaillant too, a pupil of Tournefort, and the most expert and indefatigable botanist of his time, did great service to his favourite science, by writing on the plants growing naturally round Paris, and detecting the proper use of the pollen, by his nice observations and experiments on the flowers of the pellitory, but still more by improving on the labours of his master; for he both corrected various faults in his method, and, by establishing several new genera, succeeded in bringing many of the smaller plants, which Tournefort had partly overlooked, into some form of arrangement. A consumption, however, which appears to have been brought on by fatigue and unseasonable exposure in his botanical excursions, put an end to his life in 1722, and deprived the world of his promising abilities. What Vaillant did not live to accomplish, was, however, accomplished afterwards by the skill and perseverance of Dillenius and Micheli. The former a Hessian, who was some time professor of botany in his native city Giessen, and latterly at Oxford, where he died in 1747, devoted his attention in a particular manner to the study and arrangement of the mosses. His merits as a botanist were great in other respects; but in this branch of the science more especially he succeeded so well, that his history of the mosses is still considered as one of the best; and a very competent judge has termed his descriptions "a model of perspicuity." The latter, by birth a Florentine, and placed at first in the humble situation of a gardener,

Dillenius. Born A. D. 1684. Died A. D. 1747.

Micheli. Born A. D. 1679 Died A. D. 1729.

was possessed of a discriminating eye; and being led by an ardent curiosity to pry into the habit and appearance of the minutest plants, which he used to dissect with peculiar delicacy, was fortunate enough to make several important discoveries. He was, more particularly, the first who detected the true flowers of mosses, and the fruit of the mushroom tribe. And his *Nova Plantarum Genera*, a work comprising part of his discoveries, which he published about the year 1729, at Florence, where, in the latter part of his life, he was inspector of the public gardens, was not only received as a valuable present by the lovers of science at that time, but will ever remain a monument to his powers of observation.

Linnæus. Born A. D. 1707. Died A. D. 1778.

Such was the state of the science when the celebrated Linnæus appeared; and, by introducing a system which in a short time superseded every other, established a new, and hitherto the most important, æra in its history. He was born in 1707, at the village of Rooshoolt, in Smaland, a province of Sweden, where his father was clergyman; and from his earliest years began to shew a marked predilection for botanical pursuits. His father had originally designed him for the church; but owing, it should seem, to his progress in the preliminary branches of study at school having been less considerable than could have been wished, the design was abandoned: and he was even on the point of being reduced to the condition of a shoemaker, when it was at length determined, at the earnest solicitation of Rothman, a physician in the neighbouring town of Wexioe, that he should study medicine. With this gentleman, who kindly took him into his family, and furnished him with the means of instruction, he spent three years; and after about a twelvemonth more spent at the university of Lund, where the learned professor Stobæus became his oracle and patron, he went to Upsal, and there entered on a course of more advanced study; during which he had to struggle with all those discouragements and hardships, which extreme poverty brings along with it. Having at length, however, recommended himself to the notice of Celsius, professor of divinity, and the younger Rudbeck, at that time professor of botany, he was, by their good offices, brought forward to notice; and being sent, in 1732, at the expence of the Academy of Sciences, to Lapland, he had an opportunity of giving the first proof, in a public way, of his uncommon zeal and ability as a naturalist: for, after having travelled through that country for several months, in the true spirit of discovery, and with no small risk to himself, he returned with a large fund of information; the botanical part of which he gave some account of in the Transactions of the Academy for the years 1733 and 1734, and afterwards published more at large in his *Flora Lapponica*.

Having employed himself variously, and experienced some diversity of fortune during the period that intervened after his return from Lapland, he proceeded, in the spring of 1735, to Harderwyk in Holland, where, with some pecuniary assistance which he received from his future wife, Elizabeth, daughter of Moræus, physician at Fahlun, in the province of Dalecarlia, he was enabled to take the degree of doctor of medicine: and being shortly afterwards recommended by the great Boerhaave, who was himself a botanist of no mean fame, to Dr George Clifford, a rich burgo-master of Amsterdam, as a fit person for arranging the large and valuable collection of plants, and other natural productions, which this gentleman had spared no expence in procuring from every quarter, he went to live with him, at his villa of Hartecamp. By the liberality of Clifford, who allowed him the full use of his garden, herbarium, and library, sent him on a short visit to England, and (which is of no less consequence to a studious mind) relieved him from the anxiety to which he had long been a prey, by furnishing him with a handsome salary and the best accommodation, he was placed in the most favourable circumstances for either acquiring or communicating knowledge. And we accordingly find, that no period of his life was distinguished by so many proofs of diligence, as that during which he resided with his munificent patron at Hartecamp.

Linnæus had already, for a considerable time, renounced the method of Tournefort, his original guide in botany, and fixed upon the leading principles of his own system; for so early as the summer of 1730, he had written an essay, which excited a considerable degree of attention in the university, on the sexes of plants. And in lectures which he read publicly the same year, for Professor Rudbeck, as well as in communications which he made afterwards to the Academy of Sciences of Stockholm, he gave still farther intimations of the change in his way of thinking. He had also published a general outline of his *Systema Naturæ*, at Leyden, shortly after taking his degree. But now that he was placed in a situation so much to his wish, and felt impelled by no common motives, he set himself with the most persevering zeal to complete what he had begun, by digesting and bringing forward to notice the whole of that scheme for reforming the science, which he had been some years projecting. The object which he proposed to himself, besides stating and exemplifying his classification, founded on the number, proportion, and situation of the sexual parts of plants, was threefold: To improve the terminology; to establish the genera on characters taken from the flower and fruit only, with the addition of new names where the old were thought faulty; and to reform the species, by fixing them also on better principles, and assigning to them trivial names, instead of those cumbersome definitions by which they were formerly known. And with these improvements in his eye, he accordingly proceeded in 1736, to complete and publish the *Fundamenta Botanica*, a small treatise containing the general outline of his reformed system. In the beginning of the following year, he favoured the public with the *Genera Plantarum*, a work into which he introduced his intended improvements in the nomenclature and distribution of the genera; and a short while afterwards he added the *Critica Botanica*, which was designed to shew the nature and propriety of the alterations proposed by him in the technology of the science. He likewise completed three other works, which were published the same year, the *Flora Lapponica*, *Hortus Cliffortianus*, and *Classes Plantarum*: and in all of them he did a very considerable service to botany, by the singular neatness and accuracy with which he described many rare as well as known plants, but chiefly by exemplifying the principles of his own system, and thereby paving the way for that triumph which its peculiar advantages gave it over others.

In 1738, Linnæus returned to his native country, and being raised, about four years afterwards, to the professorship of botany at Upsal, he devoted himself from that time anew, and with increasing ardour, to the advancement of his favourite study. With the aid of government, he restored the botanical garden, and brought it, by degrees, to be one of the most complete and valuable in Europe. He read lectures on the principles of his own system, to pupils who resorted to him from every quarter; and thus succeeded in diffusing widely the same spirit of research with which he was himself animated. He made several tours through different parts of Sweden, which enabled him to publish a *Flora* of that country. He likewise wrote essays on various subjects connected with botany, and encouraged his pupils to do the same; and at length, in 1751, he published his *Philosophia Botanica*, and two years afterwards the *Species Plantarum*. In the former, which may be styled the Grammar of Botany, and which, in fact, is a copious and elaborate commentary on the *Fundamenta Botanica*, published fifteen years before, he gave an able defence and explanation of every thing relating to the science in its improved form. And in the latter, which constitutes, as it were, the Dictionary, or Universal Repository of the discoveries hitherto made in the science itself, he described upwards of 7300 species of plants; introducing, at the same time, the use of trivial names; and arranging the whole, on the principles of his own system, in the way of classes, orders, and genera. The two taken together, are not only the last, but the most complete and deservedly celebrated of all the works which Linnæus published on botany. They contain the well-digested result of all his previous reading and observation on the subjects of which they respectively treat: And, as they were early sought after, and extensively read, they soon gave rise to a new æra in the science, and contributed, more than any thing else, to establish a perpetual monument to the fame of their author.

The pupils of Linnæus, imbibing his spirit, and furnished, by his instructions, with an easy method of turning their labours to a good account, had begun early to second his views, by dispersing themselves into various countries for the purpose of discovery. Montin, for instance, travelled through part of Lapland in 1749, and brought back some valuable gleanings, which had escaped the notice of his master. Kæhler visited the southern parts of Italy in 1752. The well-known Dr Frederick Hasselquist made a voyage about the same time to Egypt and Palestine; but dying prematurely at Smyrna, on his return, his papers were redeemed by the queen of Sweden, and afterwards published by Linnæus, in 1757, under the title of *Iter Palestinum*. Loëfling was sent, at the expense of the king of Spain, to South America; but having likewise fallen a victim to fatigue, and the nature of the climate, at Cumana, in 1756, the fruit of his researches was given to the public, two years after, by Linnæus, in a work entitled *Iter Hispanicum*. Rolander visited Surinam. Kalm, a Swedish divine, and member of the Academy of Sciences at Stockholm, who afterwards became professor of Œconomy at Abo, and distinguished himself much by his writings, spent three years in North America, where Catesby, Clayton, and Colden, had been lately pursuing the same object, and made no inconsiderable addition to their discoveries. Martin traversed Greenland, and afterwards part of the Russian empire. Osbeck and Toren went to the East Indies: And others, directing their attention differently, procured, together with them, a rich harvest of materials, which enabled their illustrious master to give a much more correct and perfect form to the last editions, both of the *Species Plantarum* and *Systema Naturæ*. Learned men, in different parts of the world, likewise favoured him with valuable communications; and several, who had not been his pupils, but who were partial to his system, began early to promote its celebrity, by adopting it in their publications. Among these we may particularly mention Dr John Frederick Gronovius of Leyden, and Dr Patrick Browne, a native of this country. The former, who had become acquainted with Linnæus, and learned the nature of his system from himself when he was in Holland, published, not long afterwards, an account of the plants discovered by Clayton in North America, under the title of *Flora Virginica*; and, in 1755, descriptions of those discovered by Rauwolff in the East, under the title of *Flora Orientalis*, both arranged according to that system: and the latter, after a considerable residence in the West Indies, prepared with much diligence, and published in 1756, an account of 1200 species of plants, arranged on the same principle, in his *History of Jamaica*.

Montin.

Kæhler.

Hassel-quist. Born A. D. 1772. Died A. D. 1752.

Loëfling. Died A. D. 1756.

Rolander.

Kalm.

Colden.

Martin.

Osbeck.

Toren.

Gronovius. Died A. D. 1783.

Browne.

There were, indeed, still a few botanists of eminence, about this time, and for some years after, who contributed greatly to the advancement of the science, without adopting the Linnæan method. The elder Burman, professor of botany at Amsterdam, for instance, favoured the public with two valuable works on the plants of Ceylon and the southern parts of Africa, the *Thesaurus Zeylanicus*, in 1737, and *Rariorum Africanarum Plantarum Decades*; and, what was still of greater consequence, he rescued from oblivion the MSS. of George Everhard Rumphius, a gentleman who had resided upwards of forty years at Amboyna, as consul to the Dutch East India Company, and spent a great part of that time in botanical pursuits, and he published from them, between the years 1750 and 1755, the *Herbarium Amboinense*, one of the greatest botanical treasures which the world yet possesses; consisting of 6 vols fol. with a supplement. Adrian Van Royen, professor at Leyden, and successor to the illustrious Boerhaave, distinguished himself also by publishing the *Prodromus Floræ Leydensis*, and exemplifying in it a method of his own, which was followed by several botanists in preference to that of Linnæus, on account of its deviating less from the order of natural affinities. The characters of the classes adopted in it were taken, generally speaking, from the *cotyledons*,

John Burman.

Rumphius. Died A. D. 1706.

Van Royen.

or seed lobes; the absence, presence, or figure, of the flower cup; the presence or figure of the *corolla*; the position or union of the *stamens*; the disposition of the flower, and the shape or situation of the fruit. The classes were as follow:

Plantæ monocotyledones, floribus distinctis:
1. Palmæ.
2. Gramina.
3. Lilia.

Plantæ polycotyledones, floribus distinctis:
4. Amentaceæ.
5. Umbellatæ.
6. Compositæ.
7. Aggregatæ.
8. Tricoccæ.
9. Incompletæ.
10. Fructifloræ.
11. Calycifloræ.
12. Ringentes.
13. Siliquosæ.
14. Columniferæ.
15. Leguminosæ.
16. Oligantheræ.
17. Diplosantheræ.
18. Polyantheræ.

Plantæ, floribus indistinctis:
19. Cryptantheræ.
20. Lithophyta.

J. G. Gmelin. Died A. D. 1755.

John George Gmelin, professor of botany at Tubingen, who had gone early to Petersburgh, and spent ten years in exploring Siberia, along with G. F. Muller, de Lisle, and Steller, proceeded, some time after his return, to lay the fruit of his labours before the public, in the *Flora Siberica*; the principle of his arrangement being that of Van Royen. But as he lived only to publish the first and second volumes himself, (the former in 1748, and the latter in 1749,) the task of editor devolved upon his nephew, Samuel Gottlieb Gmelin, who favoured the world with two more, taken partly from the MSS. of Steller, about twenty years afterwards. We regret, however, to say, that the fifth volume of this very valuable work, relating to the cryptogamic plants collected by Gmelin, has not yet been edited.

Gleditsch. Died A. D. 1786.

John Gottlieb Gleditsch, a native of Leipsic, who died in 1786 at Berlin, where he was professor, and had the honour of being an aulic counsellor, and member of the Academy of Sciences, was another botanist of this period who deserved well of the science; for, to say nothing of his miscellaneous writings, which are numerous and interesting, he distinguished himself in a particular manner by a treatise on the mushroom tribe. He also proposed a system of arrangement, which, though it has not, as far as we know, been followed by any person, is yet entitled, from its originality and elegance, to be noticed in passing.

The classes in it, which are only five, were made to depend on the insertion of the stamens, and were the following:

1. Thalamostemonis, the stamens being inserted in the receptacle.
2. Petalostemonis, the stamens being inserted in the corolla.
3. Calycostemonis, the stamens being inserted in the calyx.
4. Stylostemonis, the stamens being inserted in the style.
5. Cryptostemonis, the stamens being inconspicuous.

Haller. Born A 1708. A. D.

Another botanist of this period, who differed from Linnæus in his ideas of method, and has a claim to be mentioned with pre-eminent honour, was his illustrious rival Baron Albert Von Haller. This truly great man, who was the most general and accomplished philosopher and scholar of the age in which he lived, was born at Bern, in Switzerland, in 1708; conducted his academical studies at Leyden, under the direction of a master, for whom he seems to have cherished an enthusiastic attachment, the celebrated Dr Boerhaave; became professor of anatomy and botany in the university of Gottingen in 1736; and, after discharging the duties of his office there for several years with uncommon reputation, retired to his native city, where he at length closed a life full of honour and usefulness, in the year 1777, being at that time president of the senate of Bern, and member of almost all the literary societies in Europe.

It is foreign to our purpose, in this place, to say any thing of his transcendant merit as an anatomist and physiologist; nor do we think it necessary to follow him minutely in the detail of his labours as a botanist. It will be sufficient to mention two or three of his principal works, and subjoin the outline of that system of arrangement which he exemplified in them; premising this general remark, that ability is the characteristic feature of all he has written. One of those works appeared in 1753, under the title of *Enumeratio Plantarum Horti Regii et Agri Gottingensis*, and contains descriptions of several rare plants. Another is his *Bibliotheca Botanica*, in 2 vols 4to, published in 1771–2; which is a vast collection, made with great knowledge and discernment, of the names of all those who have written any thing on botany, together with an enumeration, and for the most part, a brief abstract of their works, arranged in the order of time: And the third, which is perhaps the most elaborate and perfect of its kind, and may be styled, by way of eminence, his Great Work, is his *Historia Stirpium Helvetiæ Indigenarum*; which appeared in 1768, in 3 vols fol. illustrated with plates. The account which he himself has given of it is the following: "Præfatio compendium historiæ naturalis Helvetiæ continet, et potissimum Alpium. Methodus mea est aliquanto perfectior, cum classes superiores a staminum ad petala ratione repetitæ hic in minores ordines dividantur, plerosque naturales. Genera subinde a Linnæanis diversa, nomina sæpe, plantæ omnes ad naturam descriptæ, nonnullæ 48 tabulis depictæ. Subjecta est utilitas œconomica et medica; breviter omnia, ut vix quidquam criticæ dederim. Plantarum numerus paulo infra 2500, quem potuissem leguminibus auxisse, aliisque passim absque cultu provenientibus plantis edulibus. Novæ plusculæ, et multæ hic primum definitæ; potissimum in magnis generibus orchidum, veronicarum, gentianarum, saxifragiarum, graminum, muscorum."

The method adopted by Haller in the distribution of the 2500 plants, described in his history, and of which we have intimated our intention to subjoin the outline, was founded on different considerations, but chiefly on that of the number of the stamens compared with the divisions of the corolla.

It was as follows:

1. Fungi.
2. Musci.
3. Epiphyllospermæ.
4. Apetalæ.
5. Gramina.
6. Graminibus affinia.
7. Monocotyledones Petaloideæ.
8. Polystemones.
9. Diplostemones.
10. Isostemones.
11. Meiostemones.
12. Staminibus sesquialteris.
13. ———— sesquitertiis.
14. Staminibus quatuor, ringentes.
15. Congregatæ.

In general, however, the simplicity of the Linnæan method, and its easy and unlimited application to practice, gave it, from the first moment of its being made public, such a decided superiority over all others, that, in the course of a few years afterwards, it had been quietly allowed to supersede them, and was beginning to be taught in the European universities; and, consequently, the history of botany, from the time that Linnæus published the *Philosophia Botanica*, or even for some years before, may be said to be little else than a detail of the means which have been used to trace more fully the principle of his system, or to discover new plants, and refer them, by a just description, to their place in that system. From that time, indeed, the zeal for research broke forth with new ardour, like a flame that has gathered strength; and the progress of discovery, now that botanists felt they were proceeding on certain fixed, but obvious principles, and directing their united exertions to the advancement of the same common object, became proportionably rapid.

The doctrine of the sexes of plants, which constitutes the ground-work, or principle, as we have termed it, of the Linnæan system, had been already, in a great measure, established, after being originally suggested by our countrymen Dr Grew and Sir Thomas Millington, by the arguments of Camerarius, Morland, Geoffroy, Vaillant, and Linnæus. But from this time it became a subject of still farther investigation, and was much confirmed and illustrated by the experiments and observations of Gleditsch, Watson, Trew, Bonnet, Kolreuter, Sprengel, and others. The two last named gentlemen, in particular, have paid the most minute and assiduous intention to the subject; and it may be worth while to add, that

Sprengel.

Sprengel, who, if our information be correct, was formerly a clergyman, and resides now as a private gentleman at Berlin, has, within these few years, communicated to the world the result of many tedious and delicate observations, in a work entitled *Das Entdeckte Geheimniss der natur im Bau und in der Befruchtung der Blumen*, or, The Secrets of Nature in the Structure and Fecundation of Flowers.

Progress of discovery in European Botany.

The range of the science, in what respects the discovery and systematic description and delineation of plants, too, began, as we have just now hinted, to widen apace: And, in order to assist the mind, in some degree, in tracing its progress, we shall proceed to give a brief detail of what has been effected, since the time we refer to, both in *indigenous*, by which we understand European, and in *exotic* botany. In Europe, several countries and districts had been already a good deal explored; so that botanists, by combining the fruit of their own researches with those of their predecessors, were able to lay before the public a pretty full account of the plants growing in them; and these accounts, from the circumstance, it should seem, of their being tolerably complete, were published, for the most part, under the title of Catalogues or Floras.

In Holland.

A catalogue of the plants of Holland, for instance, which had been published by De Gorter in 1745, was republished in a much more complete form in 1767, under the title of *Flora Belgica*; and this again was afterwards enriched by repeated supplements.

In Britain.

The plants of Britain, which had before been pretty fully enumerated by Ray, became a subject of investigation to Sir John Hill, who attempted a description of them after the Linnæan method in his *Flora Britannica*, published in 1760. But, as the task was executed in a manner quite unworthy of his abilities, Mr William Hudson, sometime Demonstrator of Botany in the Garden of Chelsea, and F. R. S. was led to turn his attention to the same object; and, availing himself of an extensive acquaintance with nature, as well as of the peculiar advantages which his residence in the British Museum afforded him, he succeeded, two years afterwards, in completing and publishing his valuable work, the *Flora Anglicana*. In 1776, Dr Withering of Birmingham produced *A Botanical Arrangement*, as he entitles it, *of all the Vegetables naturally growing in Great Britain*; a work which, since that time, has been republished with many additions, in four octavo volumes. And in the following year, the Rev. John Lightfoot contributed not a little to promote the same general object, by publishing a *Flora of Scotland*. Since that time, a good deal has been also done in the way of exploring particular districts, and of publishing catalogues of the plants growing in them, as will be evident to any one who examines the *Flora Londinensis* of Curtis; the *Flora Cantabrigiensis* (which may be considered as a more enlarged view of Dr Martyn's *Plantæ Cantabrigienses*, arranged according to the Linnæan method) of Relhan; the *Flora Oxoniensis* of Dr Sibthorp; the *Plantæ Eboracenses*, published lately in the Transactions of the Linnæan Society, of Teesdale; and a few other botanical surveys, which we have not time to specify. But what is particularly worthy of notice is, that since that time, Dr James Edward Smith, the present learned and accomplished president of the Linnæan Society, has favoured the public with two most valuable works of a general nature, combining the labours of his predecessors with the discoveries made since their time. The first, which he has entitled *English Botany*, consists of 3 vols 8vo, in which the descriptions are illustrated with very accurate and neatly coloured figures, engraved by Sowerby. The second, which appears under the name of *Flora Britanica*, and was published in 1800 and 1804, in 3 vols 8vo, is an edition of the preceding work translated into Latin, without the plates, but improved and executed in such a manner as to merit the highest praise, and to render it, deservedly, the text-book of British indigenous botany.

In Sweden.

The plants of Lapland and Sweden had been already pretty fully described by Linnæus himself, in the *Flora Lapponica* and the *Flora Suecica;* and, of course, it is the less necessary to say any thing of Kalm, Libjeblad, and others, who have gleaned after him in the same field of discovery. This subject, however, has been recently illustrated in the *Suensk botanik, utgiven af* J. W. Palmstruch, *med text forfatted af* C. Quensel. Stockholm, 1802—1804.

In Denmark.

In Denmark, however, the *Flora Danica*, a splendid national work, patronized by the king, which is meant to contain descriptions of all the plants growing in that country, illustrated by accurate and highly finished plates, was set on foot in 1766, by George Christian Oeder, at that time professor of botany at Copenhagen. After his death, it was continued by the famous zoologist Otto Frederick Muller, and is now under the superintendence of Professor Vahl. Upwards of seven volumes of it, containing more than 1200 plates, are at present before the public. In the mean time, the botany of those parts of the Danish empire which come more remotely within the scope of the *Flora Danica*, was not neglected; for the province of Norway was pretty fully explored, and an account of its flora given to the public by John Ernest Gunner, bishop of Drontheim, in his *Flora Norvegica*. John Zoega, and the above-mentioned Frederick Muller, wrote on the plants growing spontaneously in Iceland. John Christian Daniel Schreber, a favourite pupil of Linnæus, professor at Erlungen, and president of the Imperial Academy of the *Naturæ Curiosorum*, who has otherwise acquired great fame by his botanical writings, and Christian Friis Rottboll, late professor of botany at Copenhagen, treated of those of Greenland; and a few others who might be named, though of less note, contributed, in different ways, to advance the same general object by their individual exertion:—their merits, however, we cannot stop to particularise.

In Russia.

Gilibert.

S. G. Gmelin. Died A. D. 1774.

Pallas.

With respect to the Russian dominions in Europe, something had been done, in the early part of this period, towards illustrating the botany of the south-western provinces, by De Gorter and Gilibert. The former published a *Flora of Ingria*, taken chiefly from the manuscripts of Stephen Krascheninmikow, in 1761; the latter, some years afterwards, a *Flora of Lithuania*. The researches of Samuel Gottlieb Gmelin, already mentioned, who travelled for a considerable time at the expense of the late empress, but died unfortunately in 1774, while a prisoner with the Cham of the Chaitakkes, just before he was to have been ransomed; and more recently those of Peter Simon Pallas, knight of the order of Vladimir, and member of the Imperial Academy of Sciences, the celebrated author of the *Flora Rossica*, who also travelled long and extensively through the Russian empire, both in Europe and Asia, at the expense of the empress, contributed much to throw light on the nature of the vegetable kingdom in some other parts; and, within these eighteen years, the plants growing round Moscow, have been very accurately enumerated and described by Professor Stephan. Much, however, still remains to be done, in the way of exploring the Alpine ridges, dreary plains, and extensive forests, of this immense tract of country; and many years may yet be supposed to pass away, before we can expect to gain that accurate and satisfying knowledge of its productions, which is so much an object of desire with the naturalist.

With respect to the Prussian dominions, it is only necessary to state, that a concise, but well-executed enumeration and description of the plants growing in that part of them, properly called Prussia, was published by John Christopher Wulff, in 1765, under the title of *Flora Borrussica:* that a good deal of attention was paid to the plants of Silesia by Henry Von Mattuschka and Anthony John Krocker; both of whom favoured the public with a *Flora Selisiaca*, the former in 1776–7, and the latter between the years 1787 and 1790: and that a pretty good idea of the vegetable kingdom in the neighbourhood of Berlin, has been also given us by Willdenow, the present able and distinguished professor of botany in that city, in his *Floræ Berolinensis Prodromus*. We may at the same time remark, that the botany of the ancient principalities of Bohemia and Hungary, though it may not yet have received that degree of attention which it merits, has not been neglected: For Schmidt, late professor at Prague, has within these few years been engaged in publishing a valuable *Flora* of the one, though, we fear, he has not lived to complete it; while Foldi and Lumnitzer have been furnishing us with some less general, but very acceptable, views of the botany of the other.

It was, however, in Germany, properly so called, that the interests of indigenous botany were more eminently promoted during the period we are treating of. And this, as in other cases of the same nature, was the result of the combined exertions of local as well as general writers. The skill and industry of the former, became early conspicuous. For in 1750, George Rudolph Boehmer, professor at Wittenberg, published an account of the plants growing naturally in the country round Leipsic; a field of observation in which he was ably followed some years afterwards by the celebrated Schreber, and still more recently by C. G. Baumgarten. A Flora of the province of Carniola was likewise given to the world in 1760, by John Anthony Scopoli, a self-taught botanist of great fame, who was successively professor at Schemnitz and Pavia; and this, we may add, besides being very much improved and augmented in a second edition in 1772, has, since that time, been rendered still more complete, by the publication of what may be naturally enough viewed as a supplement to it, *The Flora Alpinæ Carniolæ* of Hacquet. In 1769, on the other hand, a work of considerable merit on the vegetable productions of Austria, which had been some time in a course of publication, was completed by Henry J. N. Crantz, professor of medicine and botany at Vienna: and four years afterwards, Jacquin, his distinguished successor, from whose various and enlightened labours not only botany, but natural science in general, has reaped the greatest advantages, having turned his thoughts with much zeal and ability to the same object, began to publish the *Flora Austriaca*, a work of very high character, which he completed in 1778, in 5 vols. folio; the descriptions being, as in the *Flora Danica*, which he seems to have taken for his model, illustrated with 500 accurate and neatly coloured plates. Nor was the spirit of discovery, in the mean time, less active in several other parts: for, to say nothing of the meritorious industry of Dr Murray, and after him of Weber, in exploring and describing the plants growing naturally round Gottingen; of Reichard, in preparing his account of those growing round Frankfort on the Mayn; or of John Frederick Gmelin, and John Daniel Leers, in publishing, the one a *Flora Tubingensis*, and the other a *Flora Herbonensis*; we may observe, that Pollich, a botanist of some eminence, wrote an elaborate history of the indigenous flora of the Palatinate; a subject on which Neckar had, a few years before, bestowed a good deal of attention; and that Conrad Moench, professor at Marburgh, after having surveyed the country of Hesse with great care, began to communicate the result of his researches in a work entitled, *Enumeratio plantarum indigenarum Hessiæ, præsertim inferioris*. The design, however, we regret to say, was somehow interrupted, as the first part, which appeared in 1777, is the only one which has hitherto been made public. We may add, that in 1784, a Flora of what was lately the bishopric of Fulda, was published by Leiblein. Two years after appeared another, by an anonymous author, under the title of *Flora Stuttgardiensis*; and since that time we have been favoured with the *Floræ Megalapolitanæ Prodromus* of Timm, the *Index Plantarum Erfurtensium* of Planer, the *Baiersche Flora, et Primitiæ Floræ Salisburgensis* of Schrauk, the *Icones et descriptiones graminum Austriacorum* of Host, which appeared in 1801—1805, and the *Descriptiones et Icones plantarum rariorum Hungariæ* of Count Waldstein and Paul Kitaibel, which was published in 1802 and 1805,—together with a few other catalogues, or statistical accounts, of less moment, which are to be found chiefly in periodical publications.

The authors, on the other hand, who contributed most to advance the knowledge of indigenous botany in Germany during this period, as general writers, were Hoffman, Roth, Honckeny, and Schrader. Of the work of Dr Hoffman, which appeared in 1791 under the title of *Deutchslands Flora*, or of that of Honckeny, which was published two or three years after, under the title of *Synopsis Plantarum Germaniæ*, we have not had the means of forming a competent judgment; though from the general character which Dr Hoffman in particular has as a botanist, we should be inclined to suppose that he has written well. But the *Tentamen Floræ Germanicæ* of Dr Roth, as it is modestly enough termed, which was given to the public between the years 1787 and 1794, in two large 8vo. vols.; and the *Spicilegium Floræ Germanicæ* of Dr Schrader of Gottingen, part of which appeared in 1794, we feel at liberty to speak of as works which bear the marks of skill and research, and are fitted to give a tolerably accurate idea of the subject of which they treat.

In Italy.

In Italy the spirit of enquiry was not equally active. A synopsis of the plants growing spontaneously in the Roman territory was, indeed, published about the beginning of this period, by Liberatus Sabbati. A short Prodromus of the general flora of Italy was likewise given to the world in the year 1780, by Antonius Turra. And about the same time, Piedmont in particular, was most ably surveyed by Charles Allioni, professor of botany at Turin, as will be evident to any one who examines his *Flora Pedomontana*, a work of much labour and accuracy, which he published in 1785, in 3 vols. fol.; and afterwards enriched with a valuable supplement. In 1792 Lud. Bellardi published a valuable work on the same subject, entitled, *Appendix ad Floram Pedomontanam*. A good deal of attention was likewise paid to the plants growing in the country north of the Po, by Scopoli, who, in 1786 and 1788, communicated to the public the fruit of his researches, in a miscellaneous work entitled, *Deliciæ Floræ et Faunæ Insubricæ*; and the plants in the kingdom of Naples have been described by Cyrilli in his *Plantarum rariorum regni Neapolitani* Fascic. 1. and 2. Neop. 1788, 1792. In general, however, this fine country, but especially the southern provinces of it, have by no means received that degree of notice which they merit. The vale of Enna, the forests of Apulia, the romantic scenes of Calabria, and the warm shore of the Tarcentine bay, contain a rich harvest for future naturalists, and will no doubt grace the Flora of Italy with many new species.

In France.

With respect to France, much had been done towards ascertaining its indigenous plants, before the period of which we are treating, by Tournefort, Vaillant, Lindern, Fabregou, and others. The task of doing justice to the subject, by preparing and publishing a Flora of that country on a comprehensive scale, and in a style of execution worthy of its importance, was, however, reserved for the skill and assiduity of more recent botanists. Of these, the first in the order of time was Peter Joseph Buchodz, a physician and advocate of the province of Lorrain, who in the years 1770 and 1771, published a work in 4 8vo. vols. entitled *Dictionaire Raisonné Universel des Plantes, Arbres, et des Arbustes de France*. Seven years afterwards, John Baptist de Lamarck, a member of the National Institute, but originally an officer in the army, who has since earned much fame as a botanist, by his detached essays, as well as by writing the botanical part in the *Encyclopedie Methodique*, and his *Illustrations* of the genera, produced another on the same principle, in 3 vols. 8vo., entitled *Flore Française, ou description succincte de toutes les plantes, qui croissent naturellement en France*. The third edition of this work was published by Lamarck and Decandolle in 1805, in 4 vols 8vo. In 1784, Bulliard, late demonstrator of botany at Paris, began to publish the *Herbier de la France*, which, in the course of some few years afterwards, he completed in 4 vols. fol.; a work at once elaborate and splendid, being enriched with many well executed and neatly coloured plates, and containing, among other good descriptions, the characters of the rarest fungi. And in 1808, the *Flore Parisienne* began to be published by A. Poiteau and P. Turpin.

While these gentlemen were, however, employing their talents for the advancement of the science in a more general way, others, who may be said in some sense to have been their assistants, as they contributed not a little to the materials which they made use of, were engaged in ascertaining and describing the plants of particular districts.

As the bounds which we have prescribed to ourselves in treating this article do not, however, admit of our entering into a detail of their respective merits, we shall content ourselves with barely stating, that Gerard favoured the public with a Flora of Provence, in 1761; Joseph de Necker, with a Flora of the French Netherlands, entitled *Deliciæ Gallo-Belgicæ silvestres, seu tractatus generalis plantarum Gallo-Belgicarum*, several years afterwards; Durande, with a Flora of Burgundy, in 1782; Villars, with an elaborate history of the plants of Dauphiny, in the years 1786, 1787, and 1789; and Thuillier, with a Flora of the plants growing in the neighbourhood of Paris, in 1793. Much information was likewise communicated during this period with respect to the Pyrenean flora, by Palasso, De la Peirouse, Florimond Saint Amans, and others, who successively visited the Pyrenean mountains, and paid great attention, among other things, to their vegetable productions. It may be worth while to add, that of the three gentlemen whom we have mentioned above, as authors of a general flora of France, two were themselves also local writers; for Buchodz published an elaborate *Historical Account*, illustrated with figures of the plants growing spontaneously in Lorrain, and part of the adjacent country to the north; and Bulliard wrote a *Flora Parisiensis*, or as he otherwise entitles it, *Descriptions et figures des plantes qui croissent aux environs de Paris.*

In Spain.

Quer.

Ortega.

We have only farther to add, with respect to European botany during this period, that considerable light was thrown on the flora of Spain and Portugal by the labours of Quer, Ortega, D'Asso, and Vandelli. Joseph Quer y Martinez, professor in the royal garden at Madrid, and projector of the only general history of Spanish plants which has hitherto appeared, began to publish the *Flora Espanola* in 1762, and succeeded in the course of two years in completing the publication of 4 quarto vols., on the principles of Tournefort; the first and second being chiefly occupied with preliminary matter. His death, which unfortunately happened soon after, prevented his going on with the accomplishment of his design. But his successor in the professorship and charge of the garden, Dr Casimirir Gomez de Ortega, the second of these writers, who has also treated of the plants growing in the environs of Trillo, took up the subject, and added two vols. more in 1784, in the form of a continuation. About the same time, D'Asso published a synopsis of the native plants of Arragon. And in 1788, Vandelli favoured the public with a work of some value on a subject hitherto almost unnoticed, except by Grisley, who lived more than a hundred years before him, entitled *Floræ Lusitanicæ et Braziliensis Specimen.*

Cavanill

Brotero.

Hoffman segg.

Link.

With the names of the above-mentioned botanists, we might here associate those of the late Anthony Joseph Cavanilles, a Spanish abbé and professor, who published at Madrid in 1791—1801, his *Icones et descriptiones Plantarum, quæ aut sponte in Hispania crescunt, aut in hortis hospituntur*; and of Fel. Avellar Brotero, who published in 1801 his *Phytographiæ Lusitaniæ selectior Fascic. I.*; and in 1804 his *Flora Lusitania*, in 2 parts. The botany of Portugal has been still more recently illustrated in the *Flore Portuguese, par* J. C. Compte de Hoffmansegg *et* H. F. Link. Berlin, 1809, fol. We are likewise indebted for some little information to the scientific zeal of two or three modern travellers. But, with the exception of what is to be gathered from their writings, the state of indigenous botany in Spain and Portugal is nearly the same as it was twenty years ago.

Progress Exotic B tany.

In the So of Afric

Bergius.

Burman

In tracing the progress of discovery in exotic botany, that part in the history of the science, which, agreeably to what we have before intimated, falls next to be considered, we might have begun by glancing at the meritorious zeal of those who have occasionally favoured the public with descriptions of one or more remarkable foreign trees or herbs. We might, for instance, have mentioned Dr Wright, as having furnished us with an excellent account of the *Quassia Simaruba*, *Cinchona Caribæa*, and *Geoffræa inermis*; Dr Hope, as having written well on the plant yielding the *assafœtida*; Ellis, on the *dionæa muscipula*; Fothergill and Solander on the *wintura aromatica*; Dryander, on the *Styrax Benzoin*, or Benjamin-tree of Sumatra; Lindsay on the *Cinchona brachycarpa*, and *Quassia polygama*, or bitter wood of Jamaica, and a great many others, on the particular subjects which had attracted their attention, and called forth their descriptive powers. Without, however, pretending at all to enumerate the individuals of this extensive and respectable class of writers, or to give any adequate idea of the service which they have collectively rendered to the science, we shall rather proceed, as we have been already doing in the case of European botany, to specify the labours of such as have employed themselves on a more enlarged scale in illustrating the botany of particular districts or kingdoms. And if we follow the order of time with regard to the old continent, it will be found, that the Cape of Good Hope and adjacent country, which botanists are in the use of calling Southern Africa, were early attended to. For Peter Jonas Bergius, a pupil of Linnæus, and lately professor of botany at Stockholm, published his *Descriptiones plantarum ex capite bonæ spei*, Stockholm, 1767, containing admirable descriptions of a great many specimens sent him in a dried state, by an eminent merchant of the name of Grubbius; and it will be proper to add, that among these he constituted several new genera. The following year, the younger Burman, professor of botany at Amsterdam, published something on the same subject from the valuable collection of plants left him by his father in the *Floræ Capenses Prodromus*, printed along with his *Flora Indica*. And since that time, our acquaintance with South African plants has been very much enlarged, in consequence of the researches of the cele-

In Southern Africa. brated Charles Peter Thunberg, knight of the order of Vasa, a pupil of Linnæus, and successor to his son in the botanical chair at Upsal; and of the late Francis Masson, a native of this country, who, from the humble condition of a gardener, raised himself to a good deal of eminence as a botanist, and was repeatedly sent to the warmer climates for the purpose of making discoveries.

Thunberg. Thunberg resided at the Cape from the year 1772 to the year 1775; during which time he collected in his botanical surveys a great many rare plants, which he has described with all that felicity of discrimination and language for which he is so remarkable, in a work entitled, *Prodromus Plantarum Capensium, quas in Promontorio bonæ spei Africes, annis* 1772—1775, *collegit* C. P. Thunberg. The first part of this valuable work appeared at Upsal in the year 1794, in 8vo, and the second in the year 1800.

Masson. Masson, on the other hand, besides spending two years and a half at the Cape, about the same time with Thunberg, in collecting plants at the expence, and under the patronage, of his present Majesty for the royal gardens at Kew, was sent back in 1786: And in the course of ten years more, which he devoted with much zeal to the purpose of visiting the interior parts of South Africa, and of cultivating in his garden at Cape Town such plants as he had not otherwise an opportunity of examining accurately, he succeeded in making a great many discoveries. A small work containing part of these was published in 1795, under the title of *Stapeliæ Novæ*.

Willemet. We may observe farther, in connection with what has been said as to South Africa, that Peter Remi Willemet, a Frenchman, who resided some time in the Mauritius, and died at Seringapatam in 1790, wrote the *Herbarium Mauritianum*, published in Usteri's Annals, a few years ago: And that Aubert du Petit Thuars, another botanist of the same nation, has lately favoured the world with a valuable work on the plants of Madagascar, and of the isles of France and Bourbon. Thuars.

In Northern Africa. The indigenous botany of Northern Africa, on the other hand, though not perhaps cultivated to the same extent, or with the same degree of ardour, as that now mentioned, has not been allowed to remain unattended to. For to say nothing of the meritorious zeal of some, who have furnished us with descriptions of detached parcels of North African plants, Peter Forskal, a Swede, professor of natural history at Copenhagen, and one of the most distinguished of those unfortunate naturalists and men of science, who were sent by the late king of Denmark to the East, employed himself chiefly as a botanist; and in the course of his travels through Egypt, and part of the adjoining country westward, as well as through Arabia, where he prematurely met his fate, he succeeded in collecting a great many rare plants. Of these, a considerable number were described by himself; and the descriptions, as they had been left by him at his death, were edited from his MSS. in 1775, by Carsten Niebuhr, his only surviving fellow-traveller, under the title of *Flora Egyptiaco-Arabica*. And the rest have been described within these few years, by Professor Vahl, in a work which bears the following title: *Symbolæ Botanicæ; sive plantarum tam earum, quas in itinere, imprimis orientali, collegit Petrus Forskal, quam aliarum, recentius detectarum, exactiores descriptiones, nec non observationes circa quasdam plantas dudum cognitas.*

Vahl. Vahl has likewise contributed still more directly to advance our acquaintance with the flora of North Africa: for this very able and distinguished botanist, who is still alive, travelled widely, at a former period of his life, through that country, as well as through the southern provinces of Europe, and made various important discoveries, which he has communicated, along with those of Forskal and others, in his *Symbolæ Botanicæ*. Nor can we omit to mention, with due praise, the labours of Desfontaines, who has lately favoured us with an excellent account of the plants which are indigenous along the ridge of Mount Atlas, in a work entitled, *Flora Atlantica*. Desfontaines.

In Western Africa. With respect to the flora of the western coast of Africa, we have only to say, that a good deal of light has been thrown upon some part of it, by the publication of Adanson's *Voyage to Senegal*, and the first volume of a splendid work in folio, which is now publishing at Paris by Palisot de Beauvais, a French botanist, under the title of *Flore d'Oware et Benin*. But with respect to that of the eastern coast, and more particularly of the interior, we may be allowed to add, that it is still entirely unknown, except from the account which Mr Bruce, Lord Valentia, and the intrepid, but we fear unfortunate, Mr Park, have given us of a few insulated plants; and a period of many years, we doubt not, must yet pass away before the treasures of this vast region, where the beams of a vertical sun diffuse irresistible warmth, and in favourable circumstances of soil and moisture, produce often the most astonishing effects on the powers of vegetation, can be fully disclosed to us. Adanson. De Beauvais.

In Southern Asia. In tracing the progress of discovery in Asia, it will be found that a good deal was done towards illustrating the flora of India, and particularly of those parts of it which were in possession of the Dutch, by Nicholas Lawrence Burman, professor of botany at Amsterdam, already mentioned; for he favoured the public with very excellent descriptions of many rare plants of that quarter of the world, which he had an opportunity of examining in his father's vast collection, in his *Floræ Indica*, which came out in the year 1768. He also constituted several new genera from among them, keeping as closely as possible, in doing so, to the manner of his great master Linnæus. From his time downwards, our knowledge of the Indian flora remained long almost stationary, if we except some small accessions which it received from a *Descriptive Catalogue of rare Plants whose Seeds were brought from the East Indies*, published by Colin Milne, in 1773, and from some miscellaneous communications of Professor Rottboll, and one or two others. Some very valuable single treatises were likewise communicated to the public by John Gerard Koenig, a native of Courland, and pupil of Linnæus, who had long resided in the East Indies, and exerted himself with the most surprising zeal and success, so far as discovery was concerned, in promoting the interests of his favourite science. A work, with the character of which we are unacquainted, was, however, published by a Dutch gen- N. L. Burman. Koenig.

Radermarcher. **Roxburgh.**

tleman of the name of Radermarcher, between the years 1780 and 1782 at Batavia, on the plants of the island of Java, under the title of *Naamlyst der planten, die gevonden worden op het eiland Java.* And in 1795, appeared the first volume of a very splendid work in folio, on the flora of the Coromandel coast, by Dr William Roxburgh, F. R. S. a native of Scotland, formerly resident at Samulcottah, and now at Calcutta. It was published at the expence of the East India Company with the following title, *Plants of the Coast of Coromandel, selected from drawings and descriptions presented to the Hon. Court of Directors of the East India Company, published by their order, under the direction of Sir J. Banks, Bart.* and contains good descriptions of a great many unknown plants, illustrated with most beautiful plates.

In Western Asia. **La Billardiere.**

The state of our knowledge, with respect to the flora of Western Asia on the other hand, has not been materially improved since the beginning of this period, except in so far as we are indebted to the meritorious zeal of Dr Schreber, in furnishing us with excellent characters of the plants collected by Gundelsheimer, the companion of Tournefort, in his Eastern journey,—to the researches of the unfortunate Professor Forskal, already referred to, in Arabia,—and to the discoveries made within these few years by James Julian La Billardiere, physician at Paris. This last gentleman, after surveying the mountains of Savoy and Dauphiny, set out on a journey of discovery, which he meant to prosecute under the auspices of de Vergennes, the French minister at Constantinople, as far as the Caspian Sea: but when he had arrived in Syria in the beginning of the year 1787, he found himself under the necessity of altering his plan, on account of the plague which was at that time raging in the countries he had purposed to visit, and to confine his travels to Syria alone. His expectation, as a botanist, was of course so far disappointed; but yet he succeeded in discovering several new plants; and, on his return home again, began to describe them in a masterly manner in a work in 4to, illustrated with neatly executed plates, entitled, *Icones Plantarum Syriæ rariorum descriptionibus et observationibus illustratæ;* part of which appeared in 1791. The rest, however, we regret to say, has not yet been published.

In Siberia, or Northern Asia. **J. G. Georgi.** **S. G. Gmelin.** **P. S. Pallas.**

With respect to the flora of Siberia, or Northern Asia, we have only to observe, that though the additional information which we have procured since the days of John George Gmelin has been somewhat aided by communications from Laxman, Lerche, and two or three others, in periodical transactions, it has been chiefly owing to the skill and exertion of three indefatigable travellers, John Gottlieb Georgi, a native of Pomerania, and Samuel Gottlieb Gmelin, and Peter Simon Pallas, whom we have mentioned above. The discoveries of the two former are to be found in the account which was given to the world of their respective travels, and those of the latter, to a certain extent, in his *Flora Rossica; seu Stirpium Imperii Rossici per Europam et Asiam indigenarum descriptiones et icones:* for it is proper to observe, that the first volume of this last elegant and accurate work, consisting of two parts, which were published in 1784 and 1788, is the only one which has hitherto appeared. It is to be hoped, however, for the sake of the science, that though the Empress Catherine, who patronised the earlier labours of Pallas, is gone, a similar patronage on the part of her grandson will yet enable him to bring the remaining part of his work before the public, in a style of execution not unworthy of the subject.

In Eastern Asia. **Loureiro.** **Thunberg.**

On the eastern side of Asia, the inveterate jealousy of the Chinese has long presented an insurmountable obstacle to our getting properly acquainted with the botany of this widely extended empire: so that at this day we are nearly in the same state in which we have been for above half a century, (that is, since the publication of Osbeck's *Voyage to China,*) except that we occasionally meet with descriptions of insulated plants in periodical journals, or the miscellaneous writings of a few modern authors. With respect, however, to the indigenous flora of that part of Eastern Asia, which goes under the name of Cochin-China, our information has been very considerably augmented in consequence of the zealous assiduity of John de Loureiro, a Portuguese missionary. This gentleman having found it impossible to ingratiate himself with the natives, so as to be useful to them, without some knowledge of medicine, began early to turn his attention to the productions of the vegetable kingdom, with the view of gaining a qualification which he felt to be indispensible to the success of his mission; and having by degrees come to look upon plants with the eye of a botanist, and to consider the study of them as a source of mental improvement and satisfaction, as well as of general utility, he naturally gave a wider range to his inquiries, and by collecting from all quarters, became extensively acquainted with the indigenous flora of Cochin-China, and to a certain extent with that even of the contiguous parts of China and India. At length, after a residence of 30 years, he quitted that country, and returned home to Lisbon, having touched at Mozambique, and gathered a few South African plants in his way; and in 1790, he proceeded to lay the fruit of his labour and research before the public, in a work of great merit and information, entitled, *Flora Cochinchinensis, sistens Plantas in Regno Cochin China nascentes quibus accedunt aliæ observatæ in Sinensi imperio, Africa Orientali, Indiæque locis variis.* To what has been now said with respect to Eastern Asia, we may add, that we have also become much better acquainted with the indigenous plants of Japan, and the other islands immediately contiguous to it: for professor Thunberg spent the greater part of the years 1775 and 1776 in exploring them; and after his return to Europe, put the world in possession of the large harvest of discovery which he had made, by the publication of his *Flora Japonica*; a work, in which he has so far deviated from the method of his illustrious master, as to supersede the twentieth, twenty-first, twenty-second, and twenty-third classes, but which, if we look to the conciseness, elegance, and accuracy of his definitions, may be recommended as a model for general imitation. The *Flora Japonica* was published in one pretty large octavo volume, with 39 plates, in 1784: and since that time, he has begun to publish a series of engravings in folio, illustrative of the same subject, under the title of *Icones Plantarum Japonicarum*, which we trust he will continue.

In the western hemisphere.
In South America.
Jacquin.

If we proceed now to direct our attention for a little to the western hemisphere, it will be found, that though much remains still to be done, endeavours of the most laudable nature have not been wanting to throw light on its indigenous botany. About the beginning of this period, the celebrated Jacquin made a voyage of discovery at the expence of the Emperor Francis I. of Germany, to the West Indies, in the course of which he visited most of the Caribbean Islands, and explored also some part of the contiguous coast of South America: and, on his return home, he performed a very acceptable service, by publishing, in 1760, a systematic enumeration of the plants which he had discovered, and of a few others which he had had an opportunity of examining in the collection of Francis a Mygind; and three years afterwards, appeared the *Selectarum Stirpium Americanarum Historia*, a very important work, in one volume folio, containing several new genera, and illustrated with 183 plates, concerning which, as well as his various other botanical publications, it may be said, in the words of Lamarck, "Ce savant professeur joint à d'excellentes descriptions, des figures parfaites."

Aublet.

Some years after Jacquin, Fusée Aublet, a French apothecary, who appears to have been a botanist of no ordinary skill and attainments, made a voyage to the same quarter, with the view of exploring the province of Guiana. He remained there for a considerable time, and pushed his inquiries with much diligence and success; so that, on his return to his native country, he was enabled to lay a rich harvest of discovery before the public, in the *Histoire des Plantes de la Guiane Françoise*, which appeared in 1775, in four volumes quarto.

Houstoun.
Geo. Forster.
Vandelli.

Sir Joseph Banks also contributed somewhat to throw light on the flora of the northern parts of South America, by publishing, in 1781, from the MSS. of Dr William Houstoun, a Scotchman, who had died several years before, a small work, which bears the following title, indicative of its origin, *Reliquiæ Houstounianæ; seu Plantarum in America Meridionali a Gulielmo Houstoun collectarum Icones, manu propria æri incisæ, cum descriptionibus.* Nor can we forbear to add, that though the southern extremity of the continent of America, and the extensive tracts of country belonging to the Spaniards and the Portuguese on the East, are still almost completely unexplored, we have got some little information since that time with respect to their flora, in the *Fasciculus Plantarum Magellanicarum* of the younger Forster, who, with his father, accompanied Captain Cook in his second voyage round the world, and in the *Floræ Lusitanicæ et Braziliensis Specimen* of Vandelli, already referred to, as well as in the miscellaneous writings of Lamarck, Vahl, Willdenow, Cavanilles, and one or two other recent authors.

Mutis.

The greatest and most successful efforts at discovery in South America, during this period, have, however, been made chiefly in the western and northwestern provinces, and in those which lie more towards the interior on the north. And for these we are indebted, in the first instance, to the enlightened and indefatigable zeal of Dr Joseph Celestino Mutis, astronomer Royal at Santa Fé de Bogota, who, finding himself stationed in a part of the world where the vegetable kingdom, though assuming the most interesting appearance, was comparatively unknown, began, many years ago, to devote a good deal of his time and attention to the study of it. Nor has he ceased even since to promote the business of discovery, by extending his researches over the surrounding countries, and amassing a rich and very extensive collection of specimens, as well as by transmitting occasionally some of the most rare and curious of them to his European correspondents; among whom he had heretofore the honour of reckoning the celebrated Linnæus. It is, however, a matter of regret, that though he has written a few things which have appeared in periodical transactions, bearing the stamp of ability, he has not yet asserted his claim to those honours which he so well deserves, by coming forward as the author of any great work on the subject.

Moncino, Cervantes, and Sessé.

We are likewise much indebted to the skill and industry of five Spanish gentlemen, Ruiz, Pavon, Moncino, Cervantes, and Sessé, who were sent to America several years ago, on a botanical expedition, under the auspices of the king of Spain. The result of their combined operations in the province of New Granada, and the contiguous parts of Terra Firma, where Dr Mutis was naturally selected, on account of his superior knowledge, to have the direction of the expedition; and of the labours of Moncino, Cervantes, and Sessé, who at length separated from their colleagues, and went by agreement to Mexico, where they have long been carrying on their inquiries, and preparing an account of its flora, has not yet been made public; and, of course, we are only entitled to speak of it as a future, but, we trust, by no means distant, accession to our knowledge.

Ruiz and Pavon.
Humboldt and Bonpland.

The discoveries, however, of Ruiz and Pavon, to whom it fell to explore the kingdoms of Peru and Chili, have been some time before the world; as these gentlemen proceeded, shortly after their return to Europe, to publish, in 1794, what they called a *Prodromus of the Flora of Peru*, and have since favoured us with the complete *Floræ Peruvianæ et Chilensis Prodromus*; a work in 3 vols folio, which is deservedly estimable, in as much as it is calculated, from the degree of information which it discloses, to throw a great deal of new and interesting light on the vegetable productions of that part of the world. Nor are we likely to derive a less plentiful harvest of discovery, from the more recent and highly meritorious exertions of the justly celebrated Baron Frederick Alexander Von Humboldt, the present ambassador from Prussia to the court of France, and of his companion in travel Bonpland, a French botanist. For, after spending five years in exploring some of the larger West India islands, and an extensive range of continent on both sides of the line, and collecting no less than 6200 species of rare plants, they began, in 1808, to publish, at Paris, a work on the subject, entitled, *Plantæ Equinoctiales*, which is executed in the most splendid style. The first volume of it, in folio, and a few fasciculi of the second, have already come to this country; and, as we have been gratified with an opportunity of examining them, and felt that we could not convey our idea of the course of travel pursued by the two eminent botanists concerned in its publication, or of the success which have attended their endeavours, better than in their own words, we have been led to subjoin the following passage from their instructive and well-written preface.

" Le voyage au tropique," say they, " que nous avons executé pendant cinq. ans, nous a conduit dans des pays, dont une grande partie n'avoit jamais eté visité par d'autres botanistes. L'infortune Loefling perit victime de son zele pour les sciences, n'ayant poussé que jusque aux bouches de L'Orenoque. L'illustre Jacquin n'a peu parcourir que les côtes de Venezuela et de Carthagene. Plus favourizé par le destin que ces botanistes celebres, dont les travaux nous sont servi le modele, nous avous penetré dans l'interieur de l'Amerique meridionale, depuis la côte de Caracas jusqu' aux frontiers du Bresil, ou du gouvernment de Grand Para. Nous avous cherché, a diriger nos excursions vers les regions, qui ont eté moins visitées par l'Europeens. Quelle mòisson de plantes precieuses ne nous ont pas offert, d'un coté, la chaine calcaire de Nouvelle Andalousie, les vallées de Cumanacoa, le Cocollar, et les environs du convent de Caripe ; et de l'autre, les plaines immenses qui separent, des terrains cultivés des côtes, les forets epaisses de la Guiana ! Que d'especes et de genres nouveaux n'avons-nous pas trouvé dans cette navigation penible, executé sur l'Orenoque, le Cassiquiare, le Rio Negro, et les petites rivieres de Temi, Tuamini, et Atabapo. Dans les plaines de Carichama, dans les environs de cataractes d'Atures et de Maypuré, sur la pente de la montagne granitique de Duida, situé vers les sources de l'Orenoque, dans ces regions arroseés par des pluies continuelles, le sol est couvert d'une multitude de vegetaux inconnus : les travaux des plusieurs siecles ne suffiroient pas pour fixer le nombre et les characteres. M. Mutis a examiné longtems avant nous, les forets de Turbaco, les belles rives de Madeleine et les environs de Mariquita ; mais ce grand botaniste n'a pas pu penetrer par les Andes de Quindiu dans les provinces de Popayan et de Pasto. C'est dans ces regions, sur des bords de Cauca et sur la haut plateau, qui s'etend d'Almaguer jusque a la ville d'Ibarra, que nous avons recueilli des vegetaux precieux.

" Une année de sejour dans la royaume de Quito nous a procuré les plantes, qui se trouvent sur les cimes les plus elevées de notre globe. Joseph de Jussieu est le seul voyageur, qui ait eté avant nous, a Loxa. Mais la posterite n'a pu jouir que d'une tres petite partie de ses travaux. Au Perou, nous avons examiné un grand nombre de vegetaux, que le public, doit aux decouvertes de M. M. Rouiz et Pavon : mais ces botanistes zelés n'ont pas poussé a l'est de la Cordilliere des Andes jusque a la province de Jaen de Braccamorros, ou, entre le Chinchipé et l'Amazone la Nature a etalé toutes ses richesses vegetales."

From this elegant and interesting extract, we may form, at once, some idea of the labours and difficulties which Humboldt and his colleague had to encounter on their travels, and of the important advantages which the public have a right to expect hereafter, from being put in possession of their discoveries.

In North America.

In proceeding next to give some account of the progress of discovery in North America, it will not be necessary to enter much into detail. The greater part of this vast region, with all those stores of vegetable life, utility, and beauty, which it must necessarily contain, is yet to be explored. Nor can we even say with truth, that our information, with respect to the flora of these districts which have been already examined, is by any means so extensive and satisfying as we might have been naturally led to expect ; a circumstance which is probably to be accounted for, in part, from the fear inspired by the neighbourhood of the Indians, and the difficulties with which the inhabitants of the United States have had to contend in the infancy of their government. At the same time, we are bound to acknowledge our obligation to those individuals who have exerted themselves, either as writers or travellers, in endeavouring to enlarge our acquaintance with the flora of North America, so far as it has yet been carried. And among them we may particularly mention Dr John Reinhold Forster, who published, in 1771, his *Flora Americæ Septentrionalis*, or, *Catalogue of the Plants of North America*, extracted chiefly from the writings of Professor Kalm ; Thomas Walter, author of the *Flora Caroliniana*, which appeared in 1788, but of which, as we have not had an opportunity of examining it, we are unable to give any accurate opinion ; Olof Swartz, formerly professor of botany at Erlangen, and now at Copenhagen, who, in the course of his voyages and travels in the West Indies, where he continued, as we shall immediately have occasion to notice, from 1783 to 1787, paid a visit to some part of the southern states, where he made several discoveries, which he has communicated in his writings : And, above all, M. A. Michaux, a Frenchman, who, after a good deal of travel and enlightened research, particularly in the provinces of the United States, has laid the fruit of his labour, within these few years, before the public, in a work of very considerable value, in two volumes, entitled, *Flora Boreali-Americana* ; Paris, 1803 : and in his *Hist. des Chenes de l'Amerique Septentrionale* ; Paris, 1801.

J. R. Forster.

Walter.

Swartz.

Michaux.

We are also indebted to the late Abbé Cavanilles, for a great deal of new information with respect to the flora of Mexico, which has been communicated to us in his *Icones Plantarum*. And much, as we have a little ago hinted, is soon, we trust, to be expected, in relation to the same object, from the labours of the three Spanish botanists, Moncino, Cervantes, and Sessé, who have been for some years attending to it.

In the West Indies.

In connection with what has been stated as to the Continent of America, it will be proper that we should now give some account of the endeavours which have been used towards illustrating the botany of the adjacent West India Islands : and here it will be the less necessary to say much on the subject, as we have been already led to anticipate part of the information which we had to communicate with regard to it. Jacquin, we have observed, went early to the West Indies, at the expence of the Emperor of Germany ; and although he spent some time in exploring the coast of South America about Carthagena and

Jacquin.

History.

wartz.

Venezuela, the primary object of his attention appears to have been the examination of the Caribbean Islands; and we have accordingly reaped a great deal of advantage from the publication of his discoveries. Professor Swartz, who followed him in 1783, devoted the three years of his continuance in that quarter of the world almost solely to the business of investigating the flora of the islands, and particularly of those of them which go under the name of the great Antilles,—Jamaica, Cuba, and Hispaniola: and on his return to Europe in 1788, he proceeded first to communicate some account of the general result of his inquiries and observations, in a work entitled, *Novæ genera et species Plantarum; seu Prodromus descriptionum vegetabilium, maximam partem incognitorum, quæ sub itinere in Indiam Occidentalem annis* 1783–7 *digessit.* Six years afterwards, he began to publish a series of coloured engravings illustrative of his discoveries, but was somehow prevented from continuing them; and since that time, he has done a most acceptable service to the lovers of botanical knowledge, by laying the information which he had acquired with respect to the West Indian flora, more fully and correctly before them, in a work of first rate authority in 3 vols. which he has entitled, *Flora Indiæ Occidentalis aucta atque illustrata sive descriptiones Plantarum in Prodromo recensitarum.* We are also much indebted to professor Vahl, for having characterised, in his *Ecclogæ Americanæ*, published within these few years, a great many unknown plants from different parts of America, but especially from the West Indies, where his friends Rohr, Ryan, and West, had collected and sent them to him.

ahl.

esportes.

Wright.

Nor can we forbear to mention with due praise the name of Desportes, a Frenchman, who exerted himself, at an earlier period, though in a more limited way, to ascertain and communicate something with respect to the indigenous flora of St Domingo; but particularly that of Dr William Wright, F.R.S. of Edinburgh, already noticed, who employed himself in the most laudable manner, during a residence of many years as physician in Jamaica, in collecting plants, to the number of 2000 species, most of which he gave to Sir Joseph Banks, in whose collection Professor Swartz had an opportunity of seeing them, on his return from his voyage to the West Indies, and consequently before he wrote his *Prodromus* and *Flora*, containing descriptions of those specimens of them which he had gathered himself. We are also under no small obligation to Dr Wright, for having furnished us with an account of the medicinal plants growing in Jamaica, which will be found in the 8th volume of the London Medical Journal. We may just add, that Dr Alexander Anderson, F.R.S.E. Superintendant of the Royal Garden, St Vincents, and William Lochead, Esq. formerly of Trinidad, and now of Dominica, have long been engaged in preparing materials for a *Flora Occidentalis.*

Anderson.

Lochead.

In the South Sea Islands.

It now only remains that we should briefly trace the progress of botanical discovery in New Holland, and the other South Sea Islands; and in doing so, it will not be necessary that we should go back beyond the date of Captain Cook's first voyage, as these islands were then either wholly unknown, or, at best, very little investigated in a scientific point of view.

History.

Sir Joseph Banks and Dr Solander.

The honour of visiting part of them for the first time in the character of botanists and philosophical observers, is due to Sir Joseph, then Mr Banks, and Dr Solander; the first of whom, in particular, though born to an ample fortune, and surrounded with all the attractions of friendship, did not hesitate to quit the scenes of domestic ease and plenty, and brave every form of danger, that he might have it in his power at once to gratify his own thirst for knowledge, and add to the sum of general discovery.

These two gentlemen having sailed from Plymouth with Captain Cook, in the month of August 1769, embraced every opportunity which presented itself in the course of their voyage, to procure information relative to the different branches of natural history, and particularly to botany: and so well did they succeed in their object, that on their return to England in the summer of 1771, after having explored the Society Islands, where they remained some time, and visited New Zealand, the eastern coast of New Holland, and part of New Guinea, they brought along with them a rich harvest of new plants, which now form a part of that vast collection, which Sir Joseph Banks has long spared no trouble or expence in enriching by additions procured from every quarter of the globe. And although we have to regret that little has been hitherto published on the subject, we cannot but indulge the hope, that this distinguished naturalist, and munificent patron of science, will one day gratify the world, by putting them in possession of his own discoveries and those of his deceased friend, as well as of the more rare and interesting part of that ample treasure which he has had the merit of bringing together.

J. R. Forster.

Geo. Forster.

In his second voyage, which lasted from the month of July 1772 till July 1775, and afforded a still more extensive range for research, Captain Cook was accompanied, as we have hinted elsewhere, by John Reinhold Forster, late professor at Halle, and his son George Forster, librarian and private counsellor at Mentz, two botanists of no mean fame and experience, who succeeded, like their predecessors, in making a great many discoveries: and of these, part were communicated to the public by John Forster the year after their return, in his *Characteres generum Plantarum, quas in itinere ad insulas Maris Australis collegit*, and part by his son, in his *Plantæ esculentæ insularum Oceani Australis*, and *Florulæ insularum Australium Prodromus*, which appeared in 1786.

Since the date of these publications, our knowledge of the indigenous flora of the South Sea Islands has remained nearly as it was, except in so far as New Holland is concerned. This extensive and interesting country, where both the animal and vegetable kingdom are, in many instances, marked by a peculiarity of feature, has not ceased from the time when it was first visited by Captain Cook, to be an object of attention; and various attempts have been made towards exploring it. Botanists have been sent thither at different times from this country, under the patronage of his Majesty and Sir J. Banks, for the purpose of collecting new plants, who have transmitted home a considerable number, either in a live or dried state, part of which have been already described and illustrated, with much elegance, in Aiton's *Hortus Kewensis*, (a new edition of which has been just published by his son,) and Smith's *Specimen of the Botany of New Holland*, as well as in detached communications to the Linnæan Society: and the business of discovery, we understand, is still ardently pursued in that part of the island called New South Wales, which, from its being the seat of the British settlement established in 1788, has naturally become so much the more accessible, by Mr George Caley, who is there at the expence of Sir J. Banks, and by Lieut. Col. Paterson, a distinguished traveller and botanist, who availing himself of the opportunities which he enjoys from being on that station, has long devoted his attention in the most laudable manner to the investigation of its flora.

Caley.

Paterson.

The persons, however, to whom we are hitherto under greatest obligation, for a specimen of the flora of New Holland on a general scale, are James J. La Billardiere, already mentioned, and Robert Brown, a native of Montrose. The former accompanied D'Entrecasteaux in his late voyage round the world, in search of Peyrouse; and has favoured us since his return home, with an excellent work on New Holland plants, in 2 vols. 4to, illustrated with plates, which he has entitled *Novæ Hollandiæ Plantarum Specimen*, 1804, 1806. The latter, who now lives with Sir Joseph Banks in the place of the late Jonas Dryander, went out with Captain Flinders, of the Investigator, as surgeon and botanist in that expedition which sailed from this country, if we recollect right, in 1800, and was for a considerable time occupied in exploring more fully the coasts of New Holland, began last year (1810) to lay the result of his researches before the public, in the first volume of an able work in octavo, which he means to continue, entitled, *Prodromus Floræ Novæ Hollandiæ et Insulæ Van-Diemen*. In this work he has constituted several new genera, on the principles of Jussieu, whom he acknowledges as his guide; and we may add, that in the course of it, he has occasionally, though seldom, availed himself, as we are informed in the preface, of specimens in the collection of Sir J. Banks, as well as of a few discovered originally by his friends Paterson and Menzies, and one or two others. Mr Brown, we have been told, has some intention of making a voyage to the Caraccas, for the purpose of discovery; and much advantage, we doubt not, may yet result to botany from his exertions in that quarter.

La Billardiere.

Brown.

While the nature of the vegetable kingdom, both at home and abroad, was thus becoming daily better known, in consequence of the labours of those who employed themselves in the way of general discovery, there were some who directed their thoughts more particularly to the elucidation of certain known, but hitherto not well investigated or defined orders of plants. And, by way of illustrating the success which attended their endeavours, we might have here appealed, among several other instances of the same kind, to Koenig's masterly descriptions of the Monandriæ of the East Indies; Cavanilles's dissertations on the Monadelphiæ; and the peculiar ability and neatness with which Dr Schreber, and, we may add, Rottboll and Host, have treated the subject of the grasses. The investigations, however, to which we refer at present, are those more especially which have been pursued with the view of ascertaining thoroughly the characters of that tribe of plants in which Linnæus was not able to detect the parts of fructification, and which, from that circumstance, have come to be denominated the Cryptogamiæ. These, as it is natural to suppose, became, from the first, an interesting subject of attention to his followers; nor did the skilful assiduity with which they gave themselves to the task of exploring the order of nature, and thereby endeavouring to fill up the blank which had been left in his system, remain long unrewarded.

Writers the Cryp togamiæ

Hedwig.

The justly celebrated John Hedwig, a native of Transylvania, and professor of botany in the University of Leipsic, directed his inquiries, in a particular manner, towards the Cryptogamic plants, and succeeded, after a good deal of patient research, and with the aid of very powerful microscopes, in obtaining a much more correct idea of them than had been formed by any of his predecessors. The discoveries which he made, so far as they relate to the ferns, flags, and mushrooms, are various and important; and were given to the world in a quarto volume, which appeared at Petersburgh in 1784, with the title of *Theoria generationis et fructificationis Plantarum Cryptogamicarum*. The service, however, by which he did most good to the science, and secured the most lasting monument to his own fame, was doubtless his distinguishing accurately the different parts in the flowers of mosses, and thus correcting a mistake into which Dillenius, and after him Linnæus, had fallen, in supposing the male to have been female flowers, and the seed capsules again to have been the male flowers; and his afterwards favouring the public with works which bespeak so much industry, and in which such a happy talent for arrangement and description is displayed, as his publications relative to that order of plants. The works to which we refer more particularly, are the *Fundamentum Historiæ Naturalis Muscorum frondosorum*, which appeared in 1782; the *Descriptio et Adumbratio Microscopico-analytica Muscorum frondosorum nec non aliorum vegetantium e classe Cryptogamica Linnæi*, which was published, so far as it was carried, between the years 1787 and 1797; and the *Species Muscorum frondosorum*, which has been given to the world since his death, by his favourite pupil, Dr Swaegrichen of Leipsic. And these taken together, we may add, constitute a history and description of the mosses, which not only evince the discernment and accuracy of a superior mind, but which have had the effect of introducing a total change and reform in this branch of the science, and thereby given a new impulse to the spirit of inquiry. To the merit of Professor Hedwig in these respects, we cannot, indeed, pay a better compliment, than by referring to the authority of Dr Smith, who, after stating, in his *Introduction to Botany*, the principles of arrangement adopted by that eminent naturalist, has expressed himself thus: "Various ideas have been started on this subject by Haller, Necker, and others, which could only claim attention while it remained in great obscurity. The excellent Hedwig, however, has en-degree, to the advantages resulting to botany from his works already noticed, by the publication of his *Observationes Botanicæ, Hortus Vindebonensis,—Miscellanea Austriaca,—Collectanea ad Botanicam, Chimiam et Historiam Naturalem,—Icones Plantarum rariorum*, and within these few years, of the *Plantarum rariorum horti Cesaræi Schoenbrunnensis descriptiones et icones*, which are all works of a miscellaneous nature upon an extensive scale, and characterised by the features of his usual ability. We may also make particular mention of the late Professor Rottboll of Copenhagen, as having been the author of a performance, entitled, *Descriptiones et Icones Plantarum*, which came out in 1773; of the Younger Linnæus, who published not long afterwards, the *Supplementum Plantarum;* of Andrew John Retzius, professor of botany at Lund in Sweden, who has favoured us with much useful and accurate information in his *Observationes Botanicæ*, which appeared between the years 1779, and 1791; of Lamarck, as having, with much ability, written the botanical part in the *Encyclopedie Methodique*, and more recently the *Illustration des Genres;* of the late Charles Louis de Brutelle, Member of the National Institute of Paris, author of several splendid miscellaneous publications, among which we may particularly specify the *Stirpes novæ aut minus cognitæ*, and the *Sertum Anglicum; seu plantæ rariores, quæ in hortis juxta Londinum, imprimis in horto Regio Kewensi excoluntur, ab anno* 1786 *ad annum* 1787 *observatæ;* and of Dr Smith, as having communicated to us much accurate and useful information in his *Plantarum Icones hactenus ineditæ*, which was published between the years 1789 and 1791, and in the *Icones Plantarum rariorum Descriptionibus et Observationibus illustratæ*, which followed immediately after, as well as in his numerous periodical communications; nor can we forbear to record, with due praise, the service rendered to botany, in a similar point of view, by a late acute and expert observer of nature, Mr William Aiton, author of the *Hortus Kewensis*, or *Catalogue of Plants cultivated in the Royal Botanical Garden at Kew*, which appeared in 1789; or of Professors Swartz, Vahl, and Cavanilles, the first of whom published in 1791, a work entitled, *Observationes Botanicæ*; the second, between the years 1790 and 1794, his *Symbolæ Botanicæ*, and in 1804, 1805, his *Enumeratio Plantarum vel ab aliis, vel ab ipso observatarum*, and the last more recently, but at different times, his *Icones Plantarum*, in six vols. fol. which we have already referred to, as containing a miscellaneous treasure of no ordinary value. We may observe, at the same time, that most of the botanists whom we have just now mentioned, but especially Jacquin, Swartz, Smith, Vahl, and Cavanilles, are entitled to the greatest praise, for the superior neatness and precision which they have introduced, throughout their various publications, both into their generic and specific descriptions.

Such has been the progress of systematic botany during the last sixty years. The talents of many have been called forth in various ways to promote the same general object; and the success with which they have employed them has not been inconsiderable. Some have made their way through distant countries, and gathered a rich harvest of discovery; while others have patiently followed the less honourable, but, perhaps, not less useful path of investigation at home. Some have written on particular departments of the vegetable kingdom, while others have directed their attention miscellaneously to the whole; and some have excelled in description, while others have aided the science rather by the superior neatness and accuracy of their delineations and figures. Plants which could not otherwise have been examined in the different stages of their life, have been carefully observed in their native soil by resident botanists, or raised from seeds and slips procured from distant or less accessible parts, in gardens and hot-houses: and specimens in a dried state have been every where accumulating. The transactions of societies and periodical journals, among which we may particularly mention the Botanical Magazine of Curtis in England, and the Magazines and Annals of Botany of Roemer and Usteri, physicians at Zurich on the continent, have served at once the purpose of recording otherwise detached facts, and by exhibiting things in detail as they occurred, of enabling the mind to keep pace with the progress of discovery; and by way of rendering the effect as complete as possible, a few men of experience and talent, such as Murray, Reichard, Schreber, and Willdenow, have from time to time collected the fruits of intermediate discovery; and by publishing them, in their proper places, in new editions of that universal repository of botanical knowledge, the *Species Plantarum*, have continued to furnish us with a fair and adequate representation of the state of the science; nor has a munificent patronage ceased in the mean time, both in our own country, where the present amiable sovereign has long shewn himself partial to botanical pursuits, and ready to aid any scheme for promoting their success, and in several others which could be mentioned, to diffuse its animating influence, and to contribute in various respects to the general result. And, of course, by the operations of all these causes, botany, which, previous to the days of Linnæus, was comparatively in its infancy, has been ever since making rapid progress, and is now arrived at that stage of advancement which we have been attempting to trace, and of which some adequate idea may be formed by examining Persoon's *Synopsis Plantarum*, and the *Species Plantarum*, as it has been for some years publishing under the care of the learned Professor Willdenow. Nor is this all; for if the same scope be given to curiosity, and a similar patronage continue to exert its benign influence as heretofore, we may confidently expect that the progress of the science will in future be still more accelerated. The number of learned men in different parts of the world is increasing; and it seems impossible that the fruit of their labours should not bear some proportion to that increase. The spirit of civilization, too, is daily taking a wide range, and countries which of late were hardly known to us but by report, are in the way of being explored. Nor can war, which has long been extending its calamitous sway, and checking the spirit of exertion, by restraining the literary intercourse of nations, be always supposed to continue. So that, in the course of things, we may naturally enough anticipate the time, and that, perhaps, at no great distance, when the science will make still more rapid and successful advances, and the intellectual eye will daily measure its satisfaction by the growing extent and variety of its prospect.

Writers on the natural affinities of plants.

Linnæus.

Having thus traced the progress of botany down to the present times in its systematic form, it will be necessary, in order to our having a complete idea of the subject, that we should take some notice of those writers who have treated it somewhat differently, and studied to bring plants together according to their natural affinities. And we might here begin by remarking, that the older botanists in general made it their endeavour, in forming their arrangements, to deviate as little as possible from the order of nature: a fact, in proof of which the writings of Cæsalpinus and Morrison, but particularly of Ray, may be safely appealed to. Our business at present, however, is to glance at those only, who, since the introduction of system, (by which we understand the mixed and artificial methods,) have made natural affinities professedly the subject of their study, and the basis of their arrangements. And among those, the first place in the order of time (with the exception, perhaps, of Magnol, professor at Montpellier, and author of the *Prodromus Hist. Generalis Plantarum in quo familiæ Plantarum per Tabulas disponuntur*) is due to Linnæus himself; who, in 1738, communicated to the public, in his *Classes Plantarum*, a scheme which he modestly termed *Fragments of a Natural Method*. This great man, like all true philosophical botanists, considered the natural affinities of plants, says Dr Smith, as the most important and interesting branch, or rather the fundamental part of systematical botany, and of course he bestowed much time in constructing his artificial method: he was yet daily and hourly studying the principles of these affinities among plants; conscious that no true knowledge of their distinctions, any more than of their qualities, could be obtained without it. And of this important truth, he was not only the earliest, but even the most strenuous asserter. His own words on the subject are, "Diu et ego circa methodum naturalem inveniendum laboravi: bene multa quæ adderem obtinui, perficere non potui, continuaturus dum vixero. Interim quæ novi proponam: qui paucas quæ restant bene absolvat plantas, omnibus magnus erit Apollo."

ard ieu.

The next person who endeavoured successfully to trace the affinities of which we are speaking, was Bernard de Jussieu, Demonstrator of Botany at Paris, and one of three brothers who had all a high reputation for their skill in the science. After much time and reflection devoted to the subject, he employed, in 1759, a mode of arrangement, according to which he distributed the plants in the royal gardens at France. And although he was prevented, by diffidence, from making it known to the public in any way but conversation, he nevertheless succeeded in laying the foundation on which his nephew afterwards raised the most admirable superstructure. Michael Adanson, another celebrated French naturalist and academician, who had been a pupil of Jussieu, and is, we believe, still alive, followed in the same tract. And in 1763, after having travelled through part of Africa, examined minutely the principles of many systems, and paid the greatest attention to the habit and affinities of vegetables, he published his very learned and valuable work, *Familles des Plantes*.

Laurence Jussieu.

The man, however, to whose labours the science of natural affinities owes most, is Anthony Laurence de Jussieu of the National Intitute, the illustrious nephew of Bernard de Jussieu above mentioned, and his successor in the office of Demonstrator of Botany. The skill and industry of his uncle, under whose eye he was educated, and whose ideas of arrangement had been early impressed on his mind, had prepared him for entering on his task with peculiar advantages. And as he was himself possessed of no less distinguished abilities, and enjoyed at the same time the best opportunities of procuring information from his extensive correspondence and official situation, as well as from the rare and very ample herbarium which he inherited from his relations, he felt himself encouraged to tread in his uncle's footsteps, and to leave nothing unattempted to correct and fill up that outline of arrangement which had been already sketched out to him.

He accordingly devoted himself to this object with the most persevering diligence, and at length succeeded so far as to complete and publish, in 1789, his *Genera Plantarum*; a work containing the invaluable result of many years reflection, and of the most extensive and accurate acquaintance with the vegetable kingdom. The degree of success with which the order of nature has been followed in it, as well as the general merits of its author, will be best ascertained by perusing the system, of which an abstract will be given in the course of this article. But, in the mean time, we may safely affirm, "that it is the most learned botanical work that has appeared since the *Species Plantarum* of Linnæus, and the most useful to those who study the philosophy of botanical arrangement."

Ventenat.

Ventenat, an intelligent member of the National Institute, has lately proved himself to be an able, and, for the most part, a very judicious commentator on the works of Jussieu.

Writers on the physiology of plants.

Before concluding this historical sketch, we shall shortly notice the principal writers on the physiology of plants. This department of botany was left, in a great measure uncultivated, till about the middle of the 17th century. The ancients had, indeed, paid some attention to it in a general way, as appears from the writings of Theophrastus, Dioscorides, and others. But it was reserved to the sagacity and persevering diligence of Dr Nehemiah Grew and Marcellus Malpighi, two celebrated modern naturalists, who, unknown to each other, carried on their inquiries, and published the result of them nearly about the same time, to give the first scientific and interesting view of it.

Grew.

Grew, who was born at Coventry, where his father was vicar of St Michael's, sometime before the middle of the 17th century, studied medicine on the continent, and on his return home, settled first as a physician in his native town. Being, however, induced afterwards, by various considerations, among which the enjoyment of literary society, and a greater facility of conducting his scientific pursuits, appear to have been not the least, he removed, in 1672, to London, where he had the honour of being successively elected a fellow of the Royal Society, secretary to the Society, and fellow of the Royal College of Physicians, and continued to reside there till the time of his death in 1711; and the year before he left Coventry, he published the first part of his experiments on vegetables, after having submitted it to the Royal Society, under the title of *The Anatomy of Vegetables, begun with a general account of vegetation founded thereon.* In 1673, he published a second part, entitled, *An idea of a Phytological History propounded, together with a continuation of the Anatomy of Vegetables, particularly prosecuted on Roots.* In 1675, he added the *Anatomy of Trunks*; and seven years afterwards he republished the whole, together with the anatomy of the leaves, flowers, fruits, and seeds, under the title of *The Anatomy of Plants, with an idea of a Philosophical History of Plants.*

Malpighi.
Born 1628.
Died 1694.

Malpighi on the other hand, no less celebrated for his discoveries in the anatomy of the body, than in the structure and physiology of plants, was born in the neighbourhood of Bologna in Italy, in 1628. Having discovered great powers of mind, and made an unusual proficiency in his private studies, he was early singled out by his merit from among his contemporaries, and made professor of anatomy and medicine at Bologna. He afterwards went for some time to Messina in Sicily, in consequence of repeated solicitations, and various inducements being held out to him. But feeling himself less comfortably situated than he had expected, he returned again to Bologna in 1666, and continued there till 1691, when he became physician to Pope Innocent XII., and removed to Rome, where he died from a stroke of apoplexy in 1694. His inquiries into the structure and physiology of plants which had been communicated to the Royal Society of London, of which he was a fellow, were published at their expence in 1675 and 1679, under the title of *Anatomia Plantarum;* and though professedly written on the same subject with the anatomy of Grew, will be found, like every other work of originality and merit, to place it often in a considerably various point of view.

These two gentlemen, whose physiological works were justly received by their contemporaries as a most valuable addition to natural history, have been ever since appealed and resorted to as a copious storehouse of facts and observations, were followed at a distance in the same course of inquiry by Dr Stephen Hales, and Henry Louis Duhamel du Monceau.

Hales.
Born 1677.
Died 1761.

The former, a clergyman of the church of England, who was born at Becksbourn in the county of Kent, in 1677, and died at Teddington in Middlesex, where he was rector in 1761, at the advanced age of 84, performed a most important and desirable service by the publication of his *Vegetable Staticks.* The experiments detailed in that work, and originally communicated in papers which were read before the Royal Society, are of the most satisfactory nature, if we look either to the ingenuity with which they were contrived, or the skill with which they were conducted: and no person who has taken a connected view of them will deny, that they have had the effect of throwing a new and interesting light on many things connected with the physiology of plants.

The merit of the author, whom Haller beautifully characterises, by styling him "pious, modest, indefatigable, and born for the discovery of truth," procured him not only a place in the Royal Society of London, but the honour of being elected, on the death of Sir H. Sloane, one of the very few foreign members of the Academy of Sciences at Paris. Nor can we hesitate to add, in the words of a very excellent judge, that his work "not only evinces a superior mind, but is a perfect model of experimental investigation."

Duhamel.
Born 1700.

Duhamel, who was born at Paris in 1700, and died within these thirty years, after having long held the office of superintendant of marine, and risen in point of literary honour to be dean of the Academy of Sciences, directed his attention, with hardly less ingenuity, and upon a still more extensive scale than his contemporaries, to the elucidation of the same subject. He began to publish something relating to it in the year 1728, and continued to do so occasionally till within a short time of his death: and during the whole of that period, he used such diligence, that we may safely say, on a review of his works, that he left scarcely any part of vegetable organization or economy unattempted in his experiments, or unnoticed in his writings. Of his various publications, which it would require some time even to enumerate, it would be impossible to give any adequate idea in this place; and we shall therefore merely observe, that while the result of the whole forms a large and valuable accession to our knowledge, the *Physique des Arbres,* which appeared in 1758, and may be reckoned the principal work of that indefatigable and highly meritorious naturalist, is, in a particular manner, replete with the most interesting information, and will ever remain a book of first rate authority on the subject of which it treats.

Bonnet.

Contemporary with Duhamel was Charles Bonnet, an amiable and ingenious philosopher of Geneva, who, besides doing much service to natural history, in some other respects began a series of well-devised and luminous experiments, with a view to ascertain the structure and physiology of leaves, in 1747, and published an account of them seven years after in a work entitled, *Recherches sur l'usage des Feuilles dans les Plantes.*

Gaertner.
Died 1791.

More recently, Joseph Gaertner, a most deserving German, who died at Kalve, near Stutgard, where he was physician in 1791, has favoured us with an excellent work, containing the result of much patient, accurate, and useful investigation on a subject hitherto almost neglected,—the nature and physiology of seed. And, within these few years, our countryman Darwin, alike eminent as a poet and philosopher, has thrown out many ingenious and valuable hints in his *Phytologia.* Sennebier, a learned and ingenious clergyman of Geneva, has communicated the result of much reading and inquiry, in a work entitled, *Physiologie Vegetàle;* and Desfontaines, a French botanist and professor, has written with much ability on the nature of the palm tribe.

The authors, however, who have done most for vegetable physiology in our times, are C. F. Bris-

Brisseau-Mirbel.

seau-Mirbel, professor of botany at the Athenæum in Paris, and T. A. Knight, who resides as a private gentleman at Elton, near London. The former enjoying every advantage which his official situation in the metropolis of France could give him, has been able, after much delicate investigation, and with the aid of very powerful microscopes, to trace the anatomy of vegetables with more success than any of his predecessors. And of late he has made a present of no ordinary merit to the scientific world, in a publication on the subject, which he entitles, *Traite d'Anatomie et de Physiologie Vegetale.*

Knight.

Mr Knight, who has devoted his attention for many years to vegetable physiology, and conducted his inquiries in a very superior style, began to state his ideas on the subject, in a communication made to the Royal Society of London in 1808: and since that time he has written several other papers relating to it, which have been read before that learned body, and inserted in their Transactions. They are all distinguished in a high degree for ingenuity and lucid arrangement; and the facts and deductions which they contain, go far to establish an entirely new theory of vegetation. Of this, however, as well as of the discoveries of Mirbel, we shall have an opportunity of saying something more particular in a subsequent part of this article, and shall therefore merely add at present, that they are well entitled to the diligent and attentive examination of the curious.

Besides the writers now mentioned, some others who have contributed, though in a more limited way, to throw light on the vegetable economy, might have been taken notice of,—as Priestley and Ingenhousz, who made experiments on the extrication of air from the leaves; Hedwig and Pontedora, who treated of the nature and functions of the flower; Daubenton, who wrote on the formation of the wood; Decandolle and Van Marum, on the irritability of the vegetable fibre; and Humboldt, on the germination of seeds; Ludwig, Hebenstreet, Walker, and Coulomb, on the ascent and elaboration of the sap.

Ellis.

Still more recently, our countryman, Daniel Ellis, has prosecuted a portion of the chemical department of vegetation with singular success and ability. He seems to have opened a road to new truths of the first importance, in the two parts already published, of "his Inquiry into the changes induced on the atmospheric air by germination, vegetation, &c.;" which contain the sum of all the facts hitherto ascertained on this subject by himself or by others. His theoretical views have not yet been given to the world: there is no doubt, however, that when they do appear, they will do credit to their indefatigable and ingenious author. But as the limits of this article forbid us to take a more extensive range, we must content ourselves at present with having merely referred to them.

PART I. TERMINOLOGY.

Terminology.

TERMINOLOGY is that branch of botany which explains all the terms employed in the description of plants.

SECT. I. *Terms used in general Description.*

Outer surface.

ART. I. OUTER SURFACE.—1. Glancing (*nitidus*), where the surface shines from extreme smoothness.

2. Even (*levis*), without striæ, dots, or furrows.

3. Smooth (*glaber*), without any visible hairs, bristles, or thorns.

4. Dotted (*punctatus*), fine dots perceptible to the eye, not to the touch.

5. Rough (*scaber*), small dots felt, but not seen.

6. Rugged (*asper*), where these dots are both felt and seen.

7. Hispid (*hispidus*), beset with short stiff hairs.

8. Rigid (*hirtus*), beset with moderately short hairs, but stiff.

9. Hairy (*pilosus*), beset with long single hairs.

10. Villous (*villosus*), beset with long, soft, white hairs.

11. Pubescent (*pubescens*), covered with short fine white hairs.

12. Silky (*sericeus*), a white and shining surface, from numerous and almost invisible hairs.

13. Woolly (*lanatus*), from numerous white hairs easily separable.

14. Tomentous (*tomentosus*), when fine hairs are matted together.

15. Bearded (*barbatus*), when tufts of hair appear.

16. Strigose (*strigosus*), when small close bristles are thickest at the lowest part.

17. Stinging (*urens*), where a burning sensation is induced by small hairs.

18. Fringed (*ciliatus*), where a row of hairs, equally long, is set on the margin.

19. Warty (*papillosus*), when there are small fleshy warts.

20. Pustular (*papulosus*), when there are small dimples or cavities.

21. Muricated (*muricatus*), when armed with small short spines.

22. Glutinous (*glutinosus*), when covered with slimy matter, soluble in water.

23. Viscid (*viscidus*), when covered with a viscid resinous matter.

24. Striated (*striatus*), when the surface is finely streaked.

25. Furrowed (*sulcatus*), when the streaks become deep.

State of vegetation.

ART. II. STATE OF VEGETATION.—1. Germination (*germinatio*), the swelling of the seeds, and the evolution of the tender leaves.

2. Vernation (*frondescentia, vernatio*), when the swollen buds of trees and shrubs unfold their leaves.

3. Sleep (*somnus*), the collapse of some leaves during the evening and night.

4. Defoliation (*defoliatio*), the falling off of the leaves.

5. Virginity (*virginitas*), the state which immediately precedes the unfolding of the flower buds.

6. Expansion (*anthesis*), the perfect expansion of the flowers.

7. Estivation (*æstivatio*), the period of perfection in the flower.

8. Fructification (*fructificatio*), the period at which the anthers give off their pollen to the neighbouring parts.

9. Caprification (*caprificatio*), the impregnation without the immediate agency of the plants themselves.

10. Watchings (*vigiliæ*), the opening and shutting of flowers at particular times.

11. Grossification (*grossificatio*), the increase of the future fruit.

12. Maturation (*maturatio*), the ripening of the fruit.

13. Dissemination (*disseminatio*), the scattering abroad of the fruit after it becomes ripe.

Sect. II. *Terms used in particular Description.*

Seed.

Art. I. Seed.—1. Seed (*semen*). The part by which plants are propagated. Ex *Faba*. Fig. 1. and 2. Plate lxvi.

2. Cotyledons (*cotyledones*). * The parts which compose the substance of the seed. Fig. 2. Plate lxvi.

3. Corcle (*corculum*). The rudiment of the future plant, which lies between the cotyledons. *b*, *d*, Fig. 2. Plate lxvi.

4. Rostel (*rostellum*), descends from the corcle to the earth. *d*, Fig. 2. Plate lxvi.

5. Plumule (*plumula*), ascends from the corcle. *b*, Fig. 2. Plate lxvi.

6. External membrane (*tunica externa*). *a*, Fig. 2. Plate lxvi.

7. Internal membrane (*tunica interna*). *c*, Fig. 2. Plate lxvi.

8. Scar or eye (*hilum*), the point to which the umbilical cord is attached. *a*, Fig. 1. Plate lxvi.

9. Umbilical cord (*funiculus umbilicalis*), connects the seed until it be perfectly ripe.

Arillus

Art. II. Arillus.—Arillus is a soft membrane extending over the seed.

1. Succulent (*succulentus, baccatus, carnosus*), thick and fleshy.

2. Cartilaginous (*cartilaginosus*), firm and thick.

3. Membranaceous (*membranaceus*), thin and transparent.

4. Halved (*dimidiatus*). Half the seed covered.

5. Torn (*lacerus*), when irregularly laciniated.

6. Capped (*calyptratus*). Covering the top of the seed.

7. Retiform (*reticulatus*), resembling a fine web.

Pappus.

Art. III. Pappus.—Pappus, the hairy or membranous calyx of each particular floret inclosed in a common perianth.

1. Sessile (*sessilis*), resting immediately on the top of the seed. Figs 3, 4. 12. 14. Plate lxvi.

2. Stipitate (*stipitatus*), on a pedicle. Fig. 6, 7. Plate lxvi.

3. Abiding (*persistens*), closely adhering to the seed.

4. Caducous (*caducus* s. *fugax*), falls off when the seed ripens.

5. Calycled (*calyculatus* s. *marginatus*), when a membranous rim rises over the seed: of this there are two kinds,

a. Whole (*integer*), when the rim is entire, and surrounds the top of the seed.
b. Halved (*dimidiatus*), when the rim surrounds only half the top of the seed.

6. Chaffy (*paleaceus*), when small leaves stand like scales round the top of the seed.

7. Awned (*aristatus*), when from one to three setæ are placed around the top of the seed.

8. Stellate (*stellatus*), having five long setæ radiating from one point on the top of the seed.

9. Hairy (*capillaris* s. *pilosus*), formed of many fine white hairs. Fig. 13. Pl. lxvi.

10. Setaceous (*setaceus*), of many rigid bristles, not white.

11. Fringed (*ciliatus*). Of hard setæ set with short hairs. Fig. 12. Plate lxvi.

12. Plumose (*plumosus*). Composed of fine setæ set with fine hairs.

13. Uniform (*uniformis*). When all the pappi in the same perianth are of the same form.

14. Unlike (*difformis s. dissimilis*). Where the pappi differ in form.

15. Doubled (*geminatus*). When the pappus is twofold.

16. Tuft (*coma*). A pilose pappus attached to the seeds contained in a pericarp. See Fig. 16. 17. Plate lxvi.

17. Tail (*cauda*). A thread-like body, which, appearing on the top of the seed, or of the utriculus, is set round with hairs. Fig. 14. 15. Plate lxvi.

18. Beak (*rostrum*), a persistent style on the seed or pericarp. When hooked it is called a horn. (*cornu*).

19. Wing (*ala*), a membrane attached to the seed or pericarp. Of this several varieties, as follows:

1. Monopterygia. Having one ala.
2. *Dipterygia* s. *bialata*. Two wings, Fig. 9. Pl. lxvi.
3. *Triptergia* s. *trialata*. Three wings.
4. *Tetraptera* s. *quadrialata*. Four wings.
5. *Pentaptera, polyptera* s. *quinquealata* and *multialata*. Having five or many wings.

20. Crest (*crista*), a thick wing, indented on some pericarps.

21. Ribs (*costæ* s. *juga*), prominent ridges in some pericarps.

22. Wart (*verruca*), a small round eminence on many seeds.

23. Hoariness (*pruina*), a fine white powder, that covers many seeds and pericarps.

24. Hair Net (*capillitium*), reticulated hairs, which fasten the seeds of some species of fungi, Fig. 8. Pl. lxvi.

25. Springer (*elater*), a filiform elastic body, found on the seeds of the Musci hepatici. Called also Catenula.

26. Ground Bristle (*trichidium, pecten*), a tender hair that supports the seed in some fungi.

Root.

Art. IV. Root.—The root (*Radix*) is situated at the inferior extremity of the plant, and supplies it with nourishment. In botanical language, every part covered by the earth is a root: in physiology, the erminology.

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* Plants that have no seed leaves are called *Acotyledones*; those that have one seed leaf, *Monocotyledones*, and so on. This division appears to be inaccurate.

term is confined to those parts which nourish and keep the plant firm. Fig. 18. Plate lxvi.

1. Rhizoma (*rhizoma*), the thick part of a biennial or perennial root. A, Fig. 18. Plate lxvi.

2. Radicles (*radiculæ*), the hair-like absorbent vessels of the roots. B, Fig. 18. Plate lxvi.

3. Fibrillæ (*fibrillæ*), the thread-like processes of the roots. C, Fig. 18. Plate lxvi.

4. Tuber (*tuber*), the fleshy part of the root, which produces parts similar to itself, and then dies. Fig. 21. Plate lxvi.

5. Bulb (*bulbus*), a fleshy coated mass attached to small radicles. Fig. 20, 22, 24. Plate lxvi.

6. Shoots (*soboles*), a horizontal prolongation of the roots producing new parts.

Roots are divided by botanists into classes, the distinctions of which are founded on the above parts.

The root is also characterised in the following manner:

7. Woody (*lignosa*). Fig. 18, 36. Pl. lxvi.

8. Fleshy (*carnosa*). *Daucus carota.* Fig. 29. Plate lxvi.

9. Spindle-shaped (*fusiformis*). *Daucus carota.* Fig. 29. Plate lxvi.

10. Bitten (*præmorsa*). Fig. 19. Plate lxvi.

11. Contorted (*contorta*). Fig. 37. Plate lxvi.

12. Flat (*placentiformis*). *Cyclamen Europæum.*

13. Jointed (*geniculata*). *Gratiola officinalis.*

14. Scaly (*squamosa*). *Lathræa squamaria.* Fig. 26. Plate lxvi.

15. Toothed (*dentata*). *Ophrys corallorhiza.*

16. Tufted (*comosa*), having hairy tufts at the point. *Æthusa meum.*

17. Manyheaded (*multiceps*), divided into many branches, from which shoots spring. *Astragalus uralensis.*

18. Simple (*simplex*), without branches. Fig. 29. Plate lxvi.

19. Branching (*ramosa*). Figs. 18. 34. Plate lxvi.

20. Perpendicular (*perpendicularis*). Fig. 29. Plate lxvi.

21. Horizontal (*horizontalis*). Fig. 28 Plate lxvi.

22. Creeping (*repens*), horizontal, with side branches. Fig. 38. Plate lxvi.

23. Knobbed (*tuberculata*). *Bunium bulbocastanum.*

24. Scarred (*cicatrisata*). *Polypodium vulgare.*

25. Chaffy (*paleacea*), illustrated in many of the filices.

26. Fibrous (*fibrosa*). Fig. 33. Plate lxvi.

27. Capillary (*capillaris*). *Scirpus annularis.* Fig. 32. Plate lxvi.

28. Velvety (*velutina*). *Muscus frondosus.*

29. Cleft (*fissa*). *Peltidea canina.*

30. Knotty (*nodosa*). Fig. 37. Plate lxvi.

31. Granulated (*granulata*). *Saxifraga granulata.*

32. Testiculated (*testiculata*). *Orchides.* Fig. 25. Plate lxvi.

33. Palmated (*palmata*), knobs divided at the point hanging down. *Orchis.* Fig. 25. Plate lxvi.

34. Fingered (*digitata*), a single knob compressed and divided. *Dioscoria* alternifolia.

35. Bundled (*fasciculata*). *Ranunculus ficaria.*

36. Depending (*pendula*). *Spiræa filipendula.* Fig. 23. Plate lxvi.

37. Articulated (*articulata*), one knob growing out of another. Fig. 30. Plate lxvi.

Terminology.

38. Necklacelike (*moniliformis*). *Spiræa filipendula.* Fig. 23. Plate lxvi.

39. Imbricated (*imbricata* s. *squamosa*). Fig. 27. Plate lxvi.

40. Coated (*tunicata*). *Allium cepa.* Fig. 20. Plate lxvi.

41. Nestling (*nidulans*), when small bulbs, of which the whole bulb is composed, appear under the external membrane.

42. Aggregated (*aggregata* s. *composita*), when several bulbs are conjoined at their bases.

43. Twofold (*geminata*). *Fritillaria pyrenaica.*

44. Doubled (*duplicata*), when one bulb stands over and grows out of another.

45. Supported (*suffulta*), when the root stands at a distance from the bulb, and is distinctly separated from it. *Ixia punicea.*

46. Divided (*divisa*), that branches out of the earth. *Fucus digitatus.*

47. Byssuslike (*byssacea*), having a woolly appearance.

48. Shieldlike (*scutiformis*). *Lichen floridus.*

49. Fading (*evanescens*), when the root insinuates itself into and is lost in wood, as in the *Viscum album.*

Intermediate stem.

ART. V. INTERMEDIATE STEM.—Intermediate stem (*caudex intermedius*), that part which belongs neither to the root nor stem, and is peculiar to some plants.

1. Root-shaped (*radiciformis*), that has the appearance of a tuberous root, but only partially concealed by the earth.

2. Turnip-shaped (*napiformis*). *Brassica oleracea gongylodes.*

3. Bulbous (*bulbosus*). *Ranunculus bulbosus.*

4. Stem-like (*cauliformis*). *Lilium bulbiferum; Cyclamen Europæum.*

Ascending stem.

ART. VI. ASCENDING STEM.—Ascending stem (*caudex ascendens*), that part above the soil.

1. Stock (*cormus*), supports the whole.

Stem (*caudex*), simple perennial rod. As in palms and filices.

2. Trunk (*truncus*), peculiar to trees and shrubs:

- *a* Tree-like (*arboreus*).
- *b* Shrubby (*fruticosus*).

3. Stalk (*caulis*), herbaceous, sometimes woody; properly confined to herbaceous plants. Fig. 39, 40. Plate lxvi.

a. *With respect to the branches.*

1. Distichous (*distichus*), when the opposite branches stand on the same plane.

2. Brachiate (*brachiatus*), when opposite angles stand at right angles to each other.

3. Panicled (*paniculatus*), when a stem is divided at the point into many leaves and flowering branches. *Rumex acetosella.*

4. Fastigiate (*fastigiatus*), when the branches are of such different lengths as to be of the same height.

5. Compact (*coarctus*), where the tips of the branches are bent inwards to the stem.

6. Spreading (*patens*), when the branches are nearly at right angles to the stem.

7. Diverging (*divergens*), when the branches form a right angle.

8. Divaricated (*divaricatus*), where the branches form an obtuse angle with the superior part of the stem.

Terminology.

41. Repand (*repandum*), when there are small sinuses, between which there are also segments of small circles.

42. Dentate (*dentatum*). Fig. 3. Plate lxviii. Fig. 8. Plate lxix.

43. Duplico-dentate (*duplicato dentatum*). *Ulnus campestris.* Fig. 38. Plate lxviii.

44. Dentato crenate (*dentato crenatum*), when each tooth is set with small and round teeth.

45. Serrated (*serratum*), set with sharp pointed and closely placed teeth.

46. Gnawed (*erosum*). unequally sinuated. *Salvia.*

e. *Surface.*

47. Bullate (*bullatum*) when the parts raised between the veins resemble blisters.

48. Folded (*plicatum*), as in *alchemilla vulgaris.*

49. Veined (*venosum*), when the vessels rise out of the middle rib.

50. Netwise veined (*reticulato venosum*), when the veins, which rise from the middle rib, are again subdivided.

51. Ribbed (*costatum*), when veins rise from the middle, and pass in straight lines to the margin.

52. Nerved (*nervosum*), when the vessels arising from the petiolus run to the apex, as in *Laurus cinnamomum* s. *L. camphora*, *Tropæolum majus*, *&c.*

53. Coloured (*coloratum*), of some other colour than green.

54. Cowled (*cucullatus*), when the lobes of a cordate leaf are bent towards each other.

55. Keel-shaped (*carinatum*), when the middle rib resembles a keel.

B. Compound (*composita*), when several leaves are supported on one foot-stalk. Fig. 4. Plate lxix.

56. Digitate (*digitatum*). Fig. 23. Plate lxvii.

57. Binate (*binatum*), when two stand on one foot stalk. If bent back horizontally, the leaf is called conjugate. Figs. 24, 29. Plate lxvii.

58. Begeminate (*bigeminatum*, *bigeminum*), when a divided leaf-stalk bears two leaves at each point. *Mimosa.* Fig. 26. Plate lxvii.

59. Ternate (*ternatum*). *Trifolium pratense, fragaria vesca.* Fig. 28. Plate lxvii.; Fig. 13, 14. Plate lxix.

60. Umbellate (*umbellatum*). *Panax chrysophyllum.*

61. Pedate (*pedatum*, *ramosum*). *Helleborus viridis, fœtidus, niger.* Fig. 4. Plate lxix.

62. Pinnate (*pinnatum*), where, on an undivided leaf-stalk, there is a series of leaflets on each side, and on the same plane. Figs. 25, 27. Plate lxvii.; Fig. 6. Plate lxix.

63. Super-decompound (*supra decompositum*), when a leaf-stalk, which is often divided, sustains several leaves. Fig. 17. Plate lxix.

f. *Position.*

64. Radical (*radicale*). *Viola odorata.*

65. Seminal (*seminale*), when the leaf grows out of parts of the seed, as in hemp.

66. Cauline (*caulinum*), attached to the chief stem. Fig. 7. Plate lxviii.

67. Ramous (*rameum*), rising from the branches.

68. Axillary (*axillare*, *subalare*), when the leaf stands at the origin of the branch.

69. Floral (*florale*), when close to the flower. Fig. 36. Plate lxvii.

g. *Substance.*

Terminology.

70. Membranaceous (*membranaceum*), without any pulpy matter between the membranes. In most leaves.

71. Fleshy (*carnosum*). *Sempervivum tectorium.*

72. Bilocular (*biloculare*), when a hollow lower leaf is divided by a longitudinal division into two cavities, as in *Lobilia Dortmanna.*

73. Articulate (*articulatum*, *loculosum*), when a cylindrical hollow leaf is divided by horizontal partitions. *Juncus articulatus.* Fig. 24. Plate lxvii.

74. Depressed (*depressum*), when the upper surface is, as it were, hollowed out.

75. Gibbous (*gibbosum*, *gibbum*), when both surfaces are convex.

76. Scimitar-shaped (*acinaciforme*). Sharp on one side, and broad on the other.

77. Axe-shaped (*dolabriforme*). Compressed fleshy leaf.

78. Tongue-shaped (*linguiforme*), a compressed leaf ending in a round point.

79. Deltoid (*deltoides*). Fig. 30. Plate lxviii.

80. Warty (*verrucosum*). When short leaves are truncated.

81. Hook-shaped (*uncinatum*). Bent at the point.

82. Triquetrous (*triquetrum*). Fig. 30. Plate lxviii.

h. *Situation and Position.*

83. Opposite (*oppositafolia*). Where the leaves are opposite.

84. Dissimilar (*disparia*), when opposite leaves are differently formed, as in some species of *Melostoma.*

85. Alternate (*alterna*). Fig. 13. Plate lxviii.

86. Scattered (*sparsa*). *Id.*

87. Ternate (*ternata*), when three leaves stand round the stem.

88. Stellate (*stellata*, *verticillata*), as in *Galium vulgare.* Fig. 20. Plate lxviii.

89. Tufted (*fasciculata*), when several leaves stand at one point. *Pinus larix.* Fig. 18. Plate lxviii.

90. Distichous (*disticha*), when the leaves stand in one place on the stem. *Pinus picea.*

91. Decussated (*decussata*), when the whole length of the stem is set round with four rows of leaves. In a perpendicular view of the branches, they appear to form crosses with the leaves.

92. Imbricated (*imbricata*). Fig. 22. Plate lxviii.

i. *Insertion.*

93. Petiolated (*petiolatum*). Figs. 10, 19. Pl. lxvii.

94. Palaceous (*palaceum*), when the foot-stalk is attached to the margin.

95. Peltated (*peltatum*), when the foot stalk is inserted into the middle of the leaf.

96. Sessile (*sessilis*), when there is no foot-stalk. Figs. 14, 15, 16. Plate lxviii.

97. Loose (*solutum*), a cylindrical or subalate leaf, which is loosely attached to its stem. *Sedum album.*

98. Riding (*equitans*), when the base of a linear or ensiform leaf embraces the stalk.

99. Decurrent (*decurrens*). Fig. 19. Plate lxvii.

100. Embracing (*amplexicaule*), when a sessile cordate leaf embraces the stem. Fig. 15. Plate lxviii.

101. Connate (*connatum*), when opposite and sessile leaves are joined at their bases. Fig. 14. Pl. lxviii.

k. *Direction.*

102. Appressed (*adpressum*), when the leaf turns up and lays its upper surface to the stem.

103. Rooting (*radicans*), when the leaf strikes roots.*

Leaves.

ART. XXXII. The leaves of the *Musci frondosi* are all membranaceous and simple, and with one exception sessile.

1. Piliferous (*piliferum*), having a hair at the apex. *Polytrichum piliferum.*

Parts of the leaf.

ART. XXXIII. MISCELLANEOUS PARTS OF THE LEAF.

1. Lobe (*lobus*), the segment of a leaf which is round at the apex, as in the *Acer*.

2. Segment (*lacinia*), the uneven segment of a leaf with an angular point.

3. Leafet (*foliolum*), the small leaves that compose a digitate, quinate, &c. leaf.

The leaf of a bi-pinnate leaf, (*pinna*).
Leafet of ditto, (*pinnula*).
Two-paired pinnated, (*pinnatum bijugum*).
Angle (*angulus*), the lacinia or segment.

Frond.

ART. XXXIV. FROND (*frons*), the leaf of the Palm tribe, of *Filices*, *Musci hepatici*, and *Algæ*.

Palms have a simple stem crowned with leaves.

1. Fan-shaped (*flabelliformis*), when a number of leaves are spread out in a circle at the apex of the stipe.

2. Peltate (*peltata*), when the foliaceous substance at the apex of the stipe is closed and entire.

3. Pinnate (*pinnata*), resembling a pinnated leaf.

The *Filices*, and those plants allied to them, have all the usual characters of leaves, with some others.

1. Pinnated with confluent foliola (*pinnata pinnis confluentibus*), pinnated and united at the base.

2. Doubly pinnated (*bipinnatifida*).

3. Barren (*sterilis*), when it bears neither flowers nor fruit, as in *Blechnum boreale.*

N. B. The *Musci hepatici* have no particular characters of their fronds.

Algæ have their stipes and fronds running into each other.

1. Foliaceous (*foliacea*), when the frond is divided into sections or folds, as in *Lichen saxatilis.*

2. Gelatinous (*gelatinosa*), when it is transparent, resembling jelly, as in *Lichen crispus.*

3. Leathery (*coriacea*). *Peltidea canina.*

4. Imbricated (*imbricata*). *Lichen parietinus.*

5. Umbilicated (*umbilicata*), when the frond is fixed to the body, on which it grows, by a single cord, arising out of its under surface.

6. Orbicular (*orbiculata, stellaris*). *Lichen stellaris.*

7. Crustaceous (*crustacea*). *Lichen subfuscus.*

8. Pulverulent (*pulverulenta*). *Lepra.*

9. Filamentous (*filamentosa*). *Lichen jubatus.*

10. Simple (*simplicissima*). *Fucus saccharinus.*

11. Fruticose (*fruticosa*). *Lichen unicalis.*

12. Cupbearing (*pyxidata*; *scyphifera*). *Lichen pyxidatus.*

Props.

ART. XXXV. PROPS (*fulcra*), all those parts which differ from the root, stem, leaves, and flower, but serve to support plants. The particulars are to be found in the following articles.

Stipules.

ART. XXXVI. STIPULES (*stipulæ*), are small leaves that appear on the stem, in place of the foot-stalks of leaves. Fig. 21, 23, 25. Plate lxvii. Fig. 21, 23, 25, Plate lxviii.

Double (*geminæ*), when two are opposite.

1. Lateral (*laterales*), when they stand at the origin of the footstalk.

2. Extrafoliaceous (*extrafoliaceæ*), when below the origin of the footstalk.

3. Intrafoliaceous (*intrafoliaceæ*), above the origin of the petiolus.

4. Caducous (*caducæ*), when they fall off soon after their evolution.

5. Deciduous (*deciduæ*), when they fall off a short time before the leaves.

6. Abiding (*persistentes*), when they wither and fall with the leaves, or soon after them.

Rament.

ART. XXXVII. RAMENT (*ramentum*), a small leaflet of a brownish colour, which appear on all trees when the buds open, and fall off soon after. It is placed in the angles of the footstalk.

Floral leaves.

ART. XXXVIII. FLORAL LEAVES (*bracteæ*), the leaves that are interposed between the flowers. Fig. 36. Plate lxvii.

Sheath.

ART. XXXIX. SHEATH (*vagina*), is the prolongation of a leaf, which rolls itself around the stem, and forms a cylinder; as in all the grasses.

Spathe.

ART. XL. SPATHE (*spatha*), an oblong leaf which envelopes the stem, and protects the flowers before they blow. It is common to palms, to most lilies, and arums. Fig. 34, 35. Plate lxix.

1. Univalve (*univalvis*). Fig. 35. Plate lxix.

2. Vague (*vaga*), when, besides one large common vagina, there are smaller ones for each particular division of the flower-stem.

3. Withering (*marcescens*), when it withers at flowering.

4. Permanent (*persistens*), when it remains unchanged until the fruit ripens.

Roll.

ART. XLI. ROLL (*ochrea*), a leafy body which surrounds the branches of the flower-stalk in some grasses, as in the genus *Cyperus.*

1. Foliaceous (*foliacea*), when it ends on a subulate leaf.

Bottle.

ART. XLII. BOTTLE (*ascidium*), a cylindrical, hollow, foliaceous body, often furnished with a cover, which opens occasionally, and is generally filled with pure water. It is either sessile or petiolate. In *Nepenthes distillatoria.*

Bladder.

ART. XLIII. BLADDER (*ampulla*), a round, hollow, closed body, found at the roots of some water-plants. Their form in some fuci is very singular.

Strap.

ART. XLIV. STRAP (*ligula*), a small membranous leafet at the margin of the vagina, and at the base of the leaf.

1. Truncated (*truncata*), when it terminates in a transverse line.

2. Acuminated (*acuminata*), when it has a long projecting point.

3. Decurrent (*decurrens*), when small and running down the inside of the vagina.

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* When a leaf does not agree with any of the preceding descriptions, the preposition *sub* is prefixed to the word; so that we have *subovate*, *subcordate*, &c. When the leaf agrees in general form with the descriptions, but appears to be reversed, that is, the base is in the position of the apex, and *vice versa*, the preposition *ob* is prefixed; whence we have *obovate*, *obcordate*, &c.

Involucre.

Art. XLV. Involucre (*involucrum*), consists of leaves differing from the proper leaves of the plant, which surround and enclose one or more flowers before they are evolved. It exists chiefly in the umbelliferous plants.

1. Common (*universale*), when it encloses all the flower-stalks. Fig. 7. Plate lxvii.

2. Partial (*partiale*), when it only encloses the partial umbels.

3. Halved (*dimidiatum*), when it only encloses half the stem.

4. Pendent (*dependens*), when the leaflets hang down.

Fungi.

Art. XLVI. Fungi.—Fungi are distinguished by parts totally differing from those of other plants. Fig. 2. Plate lxvii. Fig. 44. Plate lxix.

1. Wrapper (*volva*), a thick fleshy membrane which surrounds the young and unexpanded fungus, and afterwards remains close upon the ground. It varie in external appearance. Fig. 44. Plate lxix.

2. Ring* (*annulus*), a thin membrane which surrounds the stalk like a ring. At first it is connected with the pileus, and afterwards it forms a distinct part. Fig. 2. Plate lxvii.

1. Erect (*erectus*). When the ring is merely fixed below.
2. Inverted (*inversus*). The reverse of the last.
3. Sessile (*sessilis*). When attached by one side.
4. Mobile (*mobilis*). When it can be pushed up and down, as in *Agaricus antiquatus*.
5. Permanent (*persistens*). When it exists as long as the fungus.
6. Fugacious (*fugax*). When it disappears on the developement of the fungus.
7. Cobweb-like (*arachnoideus*). When composed of a very fine membrane.

Cap.

3. Cap (*pileus*), the top of the fungus, supported by the stalk. It generally contains the organs of generation. Fig. 2. Plate lxvii.

1. Flat (*planus*). With a plane surface.
2. Round (*convexus*). Fig. 2. Plate lxvii.
3. Hollow (*concavus*). Depressed above.
4. Bossed (*umbonatus*). When there is a prominent point in the centre.
5. Bell-shaped (*campanulatus*). Wide below and convex above.
6. Squarrose (*squarrosus*). When the scales stand up from the surface.
7. The parts of the pileus are as follows:
    - *a*. The boss (*umbo*). A small protuberance in its centre.
    - *b*. Gills (*lamellæ*). Thin foliaceous membranes on the inner side of the mushroom. They contain the capsule of the seed.
        1. Two-rowed (*biseriales*). When a long and short gill alternate.
        2. Three-rowed (*triseriales*). When two short gills stand between two long ones.
        3. Branched, (*ramosæ*). When several gills unite.
        4. Decurrent (*decurrentes*). When the gills run down the stalk.
        5. Venous (*venosæ*). When they are so small as to appear merely as large veins.
    - *c*. Pores (*pori*). Small holes on the underside of the *Boleti*.
    - *d*. Prickles (*aculei, echini*). Projecting points on the genus *Hydnum*, which contain the organs of generation.
    - *e*. Warts (*papillæ*). Small protuberances on the under surface, which also contain the organs of generation.

Little cap.

Art. XLVII. Little Cap (*cyphella*), a peltated cavity, with a raised rim. In some *Algæ*.

Envelope.

Art. XLVIII. Envelope (*peridium*), a thin membrane on some fungi, under which the seeds lie.

1. Simple (*simplex*), a single membrane.

2. Double (*duplex*), two membranes.

3. Circumcised (*circumcissum*), when the upper is separated equally round from the under part; as in *Arcyria*.

Cover.

Art. XLIX.† Cover (*indusium*), the tender membrane that surrounds the *sorus* in the *Filices*, and is rent on the bursting of the seed vessels.

1. Flat (*planum*), as in the *Polypodium*.

2. Peltate (*peltatum*). when the membrane is flat, and attached to the seed by a thin membrane.

3. Horny (*corniculatum*), when it is cylindrical and hollow, and encloses the parts of fructification, as in the *Equisetum*.

4. Urceolate (*urceolatum*), when it has nearly the appearance of a cylindrical cup, as in *Trichomanes*.

5. Bivalve (*bivalve*) when it separates into two parts, as *Hymenophyllum*.

6. Continuous (*continuum*). when it proceeds uninterruptedly along a produced *sorus*. *Pteris*, *Blechnum*.

7. Superficial (*superficiale*), when it consists of the superior membrane of the leaf, as *Scolopendrum*.

8. Marginal (*marginale*), when it consists of the membrane of the margin of the leaf, as in *Adianthum*.

Tendril.

Art. L. Tendril (*cirrhus*), a filiform body which some plants possess, and by which they attach themselves to some support. They are commonly spiral. Fig. 7, 10, 12. Pl. lxviii.

1. Axillary (*axillaris*). Fig. 12. Pl. lxviii.

2. Foliar (*foliaris*), when it springs from the points of the leaves. *Gloriosa superba*.

3. Petiolar (*petiolaris*), when it stands on the point of the common footstalk, a compound leaf, as in the *Vicia*. Fig. 7. Plate lxviii.

4. Peduncular (*peduncularis*,) when it rises out of the stalk.

5. Convolute (*convolutus*), when it winds regularly round some prop.

6. Revolute (*revolutus*), when it winds irregularly round.

Bud.

Art. LI. Bud (*gemma*), that part of the plant which contains the embryo, leaves, and flowers. Fig. 9, 11, 12. Plate lxvii.

1. Involute (*involuta*), when the edges of the leaves are turned inwards, as in *Humulus lupulus*. Fig. 12. Plate lxvii.

2. Revolute (*revoluta*), when rolled outwards, as in the *Salices*. Fig. 11. Plate lxvii.

3. Obvolute (*obvoluta*), when two simply closed leaves, without being rolled, embrace the half of each other. *Salvia officinalis*.

4. Convolute (*convoluta*), when the leaves are rolled up spirally.

5. Conduplicate (*conduplicata*), when they lie parallel to each other, as in the *Fagus sylvatica*.

6. Circinal (*circinata*), when the whole leaf is rolled up, so that the outside is within, and the inside without, as in the *Filices*.

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* The ring is properly a prolongation of the membrane of the pileus. When it remains attached to the pileus, it is called *cortina*.

† Dr Smith distinguishes the genera of the *Filices*, by the mode in which the *indusium* bursts.

Moss bud.

Art. LII. Moss Bud (*propago*), a round or long body from some plants, which becomes a new one, as in the mosses.

Knot.

Art. LIII. Knot (*gongylus*), a hard round body, which falls off upon the death of the parent plant, and becomes a new one, as in *Fuci.*

Gland.

Art. LIV. Gland (*glandula*), a round body, serves for transpiration and secretion, which is generally placed on the leaves or stem.

Thorn.

Art. LV. Thorn (*spina*). A strong sharp projection, which does not come off with the bark, as in the *Prunus spinosa*. Fig. 8, 9. Pl. lxviii.

Prickle.

Art. LVI. Prickle (*aculeus.*) A persistent projection, which comes off with the bark. *Rosa centifolia.*

Awn.

Art. LVII. Awn (*arista*). A pointed beard which sits on the flower of the grasses. Fig. 39. Plate lxix.

Hairs.

Art. LVIII. Hair (*Pilus*). A fine slender body, which is an organ of transpiration.—The varieties are as follow.

1. Wool (*lana*). When it is crooked and soft.
2. Fine hair (*villus*). Very fine and soft.
3. Bristle (*striga*). Very stiff.
4. Hook (*hamus*). Stiff and crooked at the point.
5. Double hook (*glochis*). Divided at the point, and each division bent backwards.

Flower.

Art. LIX. Flower (*Flos.*) The part of the plant which is composed of the organs of generation and the enclosing parts. Fig. 18, 24, 25, 37. Plate lxix.

1. Simple (*simplex*). Fig. 27. Plate lxix.
   - a. Naked (*nudus*). When there is neither a corolla or a calyx.
   - b. Apetalous (*apetalus*). When no corolla.
   - c. Aphyllous (*corollaceus, aphyllus*). When no calyx.
   - d. Hermaphrodite (*hermaphroditus*). Where there are stamens and pistils. Fig. 27. Plate lxix.
   - e. Female (*fœmineus*). Where there are no stamina.
   - f. Male (*masculus*). Where there is no pistil.
   - g. Neuter (*neuter*). Neither stamens nor pistils.

2. Compound (*compositus*, vel *communis*). Fig. 40, 45, 48 Plate lxix.
   - a. Semifloscular (*semiflosculosus*). When they consist of tongue-shaped florets. Fig. 40. Plate lxix.
   - b. Discoid (*discoideus, flosculosus*). When they consist of tubular florets.
   - c. Radiate (*radiatus*). When the tubular florets are in the centre, and the tongue-shaped florets are in the circumference. The centre is called the disc (*discus*); and the circumference the radius. Fig. 45. Plate lxix.
   - d. Semiradiate (*semiradiatus*). When only one side is composed of tongue-shaped florets.

Flowers of mosses.

Art. LX. The Flowers of Mosses are only visible with a magnifying glass, and differ from those of other plants. Fig. 14. Plate lxvii.

1. Gemmiform (*gemmiformis*). Is seated between the leaves, and resembles a swollen bud.

2. Capituliform (*capituliformis*). A spherical foliaceous flower, raised on a peduncle.

3. Disciform (*disciformis*). Is flat and composed of broad leaves, seated at the top of the stem; as in *Polytrichum commune.*

Calyx.

Art. LXI. Calyx (*calyx*). Is composed of all the coloured leaves which surround the corolla or parts of fructification. Fig. 20, 22, 27, 30, 33. Plate lxix.

1. Perianth (*perianthium*). That species of calyx which immediately encloses a flower. Fig. 28. Plate lxix.
   - a. Abiding (*persistens*). Remains after the flower, as in *Hyoscyamus niger.*
   - b. Deciduous (*deciduum*). Falls off with the flower, as in *Tilia Europæa.*
   - c. Withering (*marcescens*). Withers after the flower; but does not fall off. *Prunus Armeniaca.*
   - d. Caducous (*caducum*). Falls off before the flowers, as in *Papaver somniferum.*
   - e. Parted (*partitum*). When divided to the base.
   - f. Labiate (*labiatum, bilabiatum*). When divided into two laciniæ, as in *Salvia officinalis.*
   - g. Coloured (*coloratum*). When of a different colour than green.

2. Glume (*gluma*), the peculiar calyx of grasses. It contains several flowers, the leaves of which are called valves (*valvulæ*). Fig. 39. Pl. lxix.
   - a. Univalve (*univalvis*). *Lolium perenne.*
   - b. Coloured (*colorata*). Of any colour but green.

3. Common perianth (*anthodium*). A calyx which contains many flowers, as in *Leontodon taraxacum.* Fig. 40, 45, 48. Plate lxix.
   - a. Simple (*simplex*). When the flowers are surrounded by a single row of leaves.
   - b. Squarrose (*squarrosum*). When the leafets are bent back at the points.
   - c. Scariose (*scariosum*). When the leafets are hard and dry, as in *Centaurea glastifolia.*
   - d. Muricated (*muricatum*). When the margins of the foliola are set with short stiff prickles.
   - e. Thorny (*spinosum*). When each leafet is furnished with a thorn.
   - f. Turbinated (*turbinatum*). When it has the form of a top.

4. Perichætium (*perichætium*). The peculiar calyx of mosses, of a very minute size. Fig. 15. Pl. lxvii.

Corolla.

Art. LXII. Corolla (*Corolla*). The small coloured leaves surrounding the interior parts of the flowers, and enclosed by the calyx. Fig. 18, 31. Plate lxix.

1. Monopetalous (*monopetala*). Fig. 18, 37, 40. Plate lxix.
   - a. Tubular (*tubulosa*). Fig. 26. Plate lxix.
   - b. Clubbed (*clavata*). Bellied and closed at the aperture.
   - c. Campanulate (*campanulata*). Fig. 37. Plate lxix.
   - d. Cup-shaped (*cyathiformis*). Wider from below.
   - e. Urceolate (*urceolatum*). A short cylinder expanding to a wide surface.
   - f. Infundibuliform (*infundibuliformis*). Resembling a funnel.
   - g. Salver-shaped (*hypocrateriformis*). Having a broad rim.
   - h. Ligulate (*ligulata*). Short, and suddenly ending in an oblong expansion.
   - i. Ringent (*ringens*). *Salvia officinalis.* Resembling the open mouth of an animal.
   - k. Masked (*personata*). When both segments of a ringent flower are pressed together. *Antirrhinum majus.*

2. Polypetalous (*polypetala*). Fig. 29, 33, 38, 43. Plate lxix.
   - a. Rose-like (*rosacea*). When pretty round petals, without any unguis at their base, form a corolla. Fig. 38. Plate lxix.
   - b. Mallow-like (*malvacea*). When five petals unite at the base, and appear to be monopetalous.
   - c. Cruciform (*cruciata*). When four petals which are much produced at their bases stand opposite to each other, as in *Sinapis alba.*
   - d. Pink-like (*caryophyllacea*). When five petals are much elongated at their bases, and stand on a monopetalous calyx, as in *Dianthus Caryophyllus.* Fig. 28. Plate lxix.
   - e. Liliaceous (*liliacea*). When there are six petals without any calyx.—Sometimes there are only three petals,

and at other times the petals form a tube at the base.

f. Papilionaceous (*papilionacea*). When four petals differing in figure stand together, as in *Pisum sativum.* Fig. 30. Plate lxix. The following are the parts.

1. Standard (*vexillum*). The uppermost and largest petal, which is commonly the largest. Fig. 30. Plate lxix.
2. Wings (*alæ*). The petals that stand under the vexillum. Fig. 30. Plate lxix.
3. Keel (*carina*). The lowest petal, which stands under the vexillum, and contains the germen, the stamens, and pistils. Fig. 30. Plate lxix.

g. Orchideous (*Orchidea*). When composed of five petals, of which the undermost is long and sometimes cleft; the remaining four are bent towards each other.

Petal.

ART. LXIII. PETAL (*petalum*). A single division of the corolla. When plane, the upper part is called *lamina*, and the under part *unguis.* Fig. 28. Plate lxix.

The following are the particular parts of the monopetalous corolla.

1. Tube (*tubus*). When the under part is hollow and equally thick. Fig. 28. Plate lxix.

2. Border (*limbus*). The opening of the corolla, especially when bent back. Fig. 27. Plate lxix.

3. Lobes (*laciniæ, lobi*), are described according to their figure, number, and other circumstances.

4. Helmet (*galea*). The upper arched lobe of a ringent or masked corolla.

5. Gape (*rictus*). The space, in ringent flowers, between the helmet and the under lip.

6. Throat (*faux*). The opening of the tube in a ringent corolla.

7. Palate (*palatum*). The arch of the under lip in a personate corolla, so elevated as to close the faux.

8. Beard (*barba, labellum*). The under lip of a ringent or personate corolla.

9. Lips (*labia*). Are the divisions of a labiate corolla. The *galea* and *barba* are so called by some botanists.

10. The *corolla* of mosses differs in appearance from that of other plants. It is confined to the female moss, and remains attached until the ripening of the fruit, when it assumes an entirely different appearance. The under part is called the *vaginula*, and the upper the calyptre, (*calyptra.*)

Nectary.

ART. LXIV. NECTARY (*nectarium*). Every body on a flower which does not resemble any other parts. They are of three kinds; 1. Those that secrete honey. 2. Those that receive it. 3. Those that protect the various parts of the plant.

1. Those that do secrete honey are glands (*glandulæ*), scales (*squamæ nectariferæ*), and pores (*pori nectariferi.*)

2. Those that receive and preserve the honey are numerous.

a. Hood (*cucullus*), a hollow bag separated from every other part of the flower, as in *Aconitum.*

b. Tube (*tubus*). A cylindrical body constantly attached to the flower, as in *Pelargonium.*

c. Pit (*fovea*). A cavity in any part of the flower.

d. Fold (*plica*). An oblong groove formed by the bending inwards of the corolla.

e. Spur (*calcar*). A horn-shaped production of the corolla, containing honey, as in *Viola odorata.* Fig. 30. Plate lxix.

3. Those that protect the various parts of the plant are as follow:

a. Arch (*fornix*). The small elongation of the corolla, which commonly covers the stamens, or is seated at the aperture of the corolla.

b. Beard (*barba*). A number of short hairs situated at the bottom of the flowers, on the petals, or at the opening of the calyx or corolla.

c. Thread (*filum*). A thick tender body found at the bottom of the flower. *Passiflora Periploca.*

d. Cylinder (*cylindrus*). A thin body that surrounds the pistil, and supports the stamens, as in *Swietenia.*

e. Crown (*corona*). A very variable body, generally resembling the corolla. *

Stamen

ART. LXV. STAMENS (*stamina*). Are bodies composed of different parts, which contain the dust or pollen essential for fructification. From Fig. 1—22. Plate lxx.

1. Filament (*filamentum*). A long body that supports the anther. *b*, Fig. 24, 50. Plate lxix.

2. Anther (*anthera*). A cellular body that contains the pollen. *a*, Fig. 24. Plate lxix. Fig. 24. Plate lxix.

3. Pollen (*pollen*). A very fine dust contained in the anther.

Pistil.

ART. LXVI. PISTIL (*pistillum*). Stands in the middle of the stamens, and is also essential to fructification. *c* Fig. 24. Plate lxix. From Fig. 23 to 60. Plate lxx.

1. Germen (*germen*). The lowest part of the pistil, and the rudiment of the fruit. *d*, Fig. 24, 25. Plate lxix.

2. Style (*stylus*). Is a small stalk seated upon the germen. † Fig. 24. Plate lxix.

3. Stigma (*stigma*). The top of the style. *e* Fig. 23. Plate lxix. ‡

Fruit.

ART. LXVII. FRUIT (*fructus*). Succeeds the flowering, and is of various kinds. ‖

1. Seeds (*semen*). See Sect. II. Art. 1. Fig. 1. Plate lx.

2. Pericarp (*pericarpium*). Fig. 71. Plate lxx.

a. Bladder (*utriculus*). A thin skin that contains a single seed; as in the *Adonis*, *Thalictrum*, *Galium*, and *Amaranthus.* The seed is connected by the umbilical cord.

b. Winged fruit (*samara*). A pericarp which contains one or two seeds, and is either partially or completely surrounded by a thin, transparent membrane. Examples of it are *Ulmus*, *Acer*, *Fraxinus*, *Betula.* Fig. 78. Plate lxx.

c. Follicle (*folliculus*). An oblong pericarp filled with seeds, and bursts longitudinally on one side. It is usually double. Fig. 73. Plate lxx.

d. Capsule (*capsula*). A pericarp consisting of a thin ermino-logy.

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* In some plants there are small cartilaginous bodies, which are called tubercles (*tubercula*), and appear to be dried up glands. The nectaries of grasses are only distinguished from the glumes by extraordinary fineness. There appear to be no nectaries in mosses.

† When there is a style to each germen, it ought to be noted.

‡ The pistil of mosses is furnished with all the parts of pistils of other plants. Some, however, are barren. The filices and fungi have no style.

‖ All vegetables have been divided into two great classes---1. *Vegetabilia gymnospermia.* 2. *Vegetabilia angiospermia.* In the first the germen changes into naked seeds; in the second the seeds have an envelope.

coat, which contains many seeds. Its parts are, 1. the partition (*dissepimentum*); 2. the cells (*loculamenta*); 3. the *columella*, that passes through the capsule; 4. the valves (*valvula*); and 5. the suture (*sutura*). Fig. 68, 69, 70, 71, 72, 89, 90, 91. Plate lxx.

- α. Tricoccous (*tricocca*). When a trilocular capsule appears as if three had grown together, as in *Euphorbia*, *Thea viridis*, and *Ricinus*.
- β. Corticated (*corticata*). When the outer case is hard, and the inner one soft, as in the *Magnolia*.

N. B. The fruit of the hepatic mosses is also called a capsule.

e. Nut (*nux*). A seed covered with a hard shell that does not burst, as in *Corylus avellana*. Fig. 61, 62, 63, 64, 65. Plate lxx. The shell is called *putamen*.

f. [*] Drupe (*drupa*). A nut covered with a fleshy, succulent, or cartilaginous coat. *Prunus cerasus*, *Amygdalus persica*, *Cocos nucifera*, *Juglans regia*, *Halesia*. Fig. 81, 82, 83, 84, 85. Plate lxx.

g. [*] Berry (*bacca*). A succulent fruit that contains many seeds, but never bursts, as in *Ribes grossularia*, *Garcinia mangostana*, *Hedera helix*. Fig. 86, 87. Pl. lxx.

h. Apple (*pomum*). A fleshy fruit, having a perfect capsule for the seed in its centre. *Pyrus malus*, *Pyrus communis*, &c. Fig. 80. Plate lxx.

i. Pumpkin (*pepo*). A succulent fruit, having its seeds attached to the inner surface of the rind, as in *Cucumis sativus*.

k. Silique (*siliqua*). A dry elongated pericarp, consisting of two valves, to the inner margins of both sutures of which the seeds are attached, as in *Sinapis alba*, &c. When it is broad, it is called silicule (*silicula*). Fig. 77, 79. Plate lxx.

l. Legume (*legumen*). A dry, elongated pericarp, consisting of two valves, to the margins of the under suture of which the seeds are attached. Fig. 74. Pl. lxx.

- α. Torolose (*torolosum*). When both valves are round and thick.

m. Loment (*lomentum*). An elongated pericarp, which never bursts. It is divided into small cells, each of which contains a seed attached to the under suture.

n. Case (*theca*). The fruit of the frond of mosses. It opens in the middle with a lid.

- α. Calyptre (*calyptra*). A tender skin that covers the top of the theca. Fig. 31. Plate lxix.
- β. Lid (*operculum*). A round body that closes the theca, and falls off when the seed ripens. Fig. 31. Pl. lxix.
- γ. Fringe (*fimbria*, *annulus*,) a narrow, sinuated, and dentated membrane, that lies within the operculum, and serves to throw it off from the theca.
- δ. Mouth (*peristoma*, *peristomium*). The membranaceous rim that surrounds the mouth of the theca.
- ε. Epiphragm (*epiphragma*). The thin membrane which stretches over the mouth of the theca, in the genus *Polytrichum*.

Termino-logy.

Seed-column (*sporangidium*, *columnula*). A slender filament passing through the middle of the theca, and supporting the seed.

- ζ. Apophysis (*apophysis*). A fleshy body that is placed at the base of the theca.

There are also other productions of the parts of fructification, which receive particular names, as they differ from the true pericarp.

- α. Strobile (*strobilus*). A catkin, the scales of which have become woody.
- β. False capsule (*capsula spuria*). As in *Rumex*.
- γ. False nut (*nux spuria*). When the calyx becomes hard.
- δ. False drupe (*drupa spuria*). Where a nut is half sunk in a fleshy receptacle, as in the *Taxus baccata*.
- ε. False berry (*bacca spuria*). When the foliola of a catkin become fleshy, and assume the appearance of a berry.

Art. LXVIII. Base (*basis*), the part on which the flower and the fruit stands. Base.

1. Receptacle (*receptaculum*), an extended body, on which the parts of fructification stand.

- a. Simple (*proprium*). Not much raised, as in *Fragaria vesca*.
- b. Common (*commune*). More extended, and contains many flowers.

2. Fruit bed (*thalamus*), an extended body that encloses and conceals the fruit. If minutely divided, the seed cases may be seen by the help of a microscope.

- a. Target (*pelta*). A round or oblong fruit bed, chiefly found in the genus *Peltidea*.
- b. Shield (*scutella*). A plate-shaped fruit bed, common to the *Algæ*.
- c. Tubercle (*tuberculum*). A convex fruit bed, without a raised margin, also in the *Algæ*.
- d. Trica (*trica*, *gyroma*). Having the appearance of a saucer.
- e. Lirella (*lirella*). A linear fruit bed furrowed in the middle. In the genus *Opegrapha*.
- f. Cistilla (*cistilla*). Shaped like a ball, within which is a powdery substance.
- g. Orbicule (*orbiculus*). A round fruit bed, compressed on the sides, as in *Nidularia*.

PART II. VEGETABLE PHYSIOLOGY.

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The acquisition of the individual characters of plants is not the sole object of Botany; it aspires still higher; it furnishes the materials, by the examination of which the philosopher is enabled to develope all the singular operations of nature in the vegetable kingdom, and to constitute an interesting department of science, to which the name of Vegetable Physiology is given, in opposition to that branch of philosophic research, which derives its name from having the various functions of the animal economy for its object. finition

Such being the end of vegetable physiology, it becomes necessary to convey some idea of the beings whose functions this science professes to discuss; which cannot be better done than by taking a short survey of all material beings.

The most general, though by no means the most obvious division of natural objects, is into *organised* and *unorganised* bodies; the first comprehending the animal and vegetable kingdoms, the latter the mineral kingdom. The peculiar characters of these great classes cannot be confounded, as the former possesses certain properties which are referable to a living principle; while the latter is dead matter, subject to certain mechanical and chemical laws. Division.

The line of distinction, however, between animals and vegetables cannot be so readily traced; for the transition from the one to the other is so imperceptible, that we cannot, with the knowledge we now possess, fix on any solitary character which may not be controverted, or which, indeed, may not be founded, in some degree, on an unproved assumption. It is not, therefore, at all wonderful, that every attempt at a legitimate definition should have failed.—Of late, physiologists have taken a wider range, and have instituted a parallel between the general characters of animals and of vegetables, instead of confining themselves to one or two individual facts. That this parallel description, which we shall adopt, may be more readily understood, it will be expedient to sketch, rapidly, all the properties common to both kingdoms; and then we shall be better enabled to compare those peculiar to each.

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[*] If the flower have many styles, the germen of each of which produces a small berry or drupe, all the small drupes or berries coalesce, and form a large one.

That all animals and vegetables exhibit phenomena which we refer to a living principle, is an undeniable fact. Without investigating the nature of this living principle, it is sufficient for our purpose that certain phenomena are exhibited by organised matter, which essentially distinguish it from that which is unorganised. The most ignorant, as well as the most subtle, of mankind knows perfectly, that there is a most important difference between the man by whose benevolence he might have been soothed, or by whose eloquence he might have been animated, and the same individual when he has ceased to live. It is of little moment wherein the nature of this difference consists;—the effects are cognizable by our senses. In the same manner, vegetables may be either living or dead; and although their vital actions are not evident as those of animals, yet a little careful examination will soon convince us of their existence. If by external violence, by electricity, by heat, or by any other means, the life of a plant be destroyed, the various living functions will cease, and the parts of the plant will become subject to the laws of chemical decomposition, which in all cases succeeds the cessation of life.

Reproduction.

Vegetables, as well as animals, possess, to a certain extent, the power of reproducing certain parts which have been destroyed. Contractility, elasticity, and irritability, are also characters of all organised matter, as has been sufficiently shewn by various experiments.

Sensibility.

Sensibility appears to be confined to animals; for no experiments, except those of Rafn on the *Mimosa sensitiva*, afford the least suspicion of its existence in vegetables. And even these experiments are so liable to error, besides being isolated, that no general conclusion can be fairly drawn from them. Such are the leading properties peculiar and common to all organised bodies. We shall now proceed to contrast those properties in which they differ, as concisely and as fairly as the subject will permit.

Animals.

The food of the animal consists of organised matter, which is introduced into its system by a mouth; its excrements are carried off by an intestinal canal; it is farther characterised by brain, nerves, and by evident signs of sensibility, and of voluntary motion.

Vegetables.

The vegetable, on the other hand, is nourished by inorganic matter, which it receives through the medium of roots; it does not indicate sensibility, or exert voluntary motion. In addition to the above characters, which are of primary importance, some philosophers have attempted to make the organs of generation the criterion of distinction. This, however, appears to be fanciful and unsatisfactory.—It is not to be expected that every vegetable and animal will give evident proofs of all of the above characters; it will be enough if they possess the more striking and obvious.

Analy

Chemical analysis points out the constituent principles of vegetables, which differ from those of animals: the former being chiefly composed of carbon, hydrogen, and oxygen; while the latter also contain azote. Various compounds, formed of these simple constituents, are also found in vegetables. For a correct account of them, we beg leave to refer to the article CHEMISTRY. Plants are composed of various individual parts, and of the organs proper to those parts. We shall describe each of these; and immediately after each description, give some account of the functions it performs.

SECT. I. *On the Seed.*

Seed.

The seed, though the last production of the mature plant, is the means by which a similar plant is reproduced. This is the case in the whole range of the vegetable kingdom, as has been well proved by the valuable experiments of Hedwig, and others.

It therefore will be proper to commence our sketch of the anatomy and physiology of plants, with this most important part; and we shall begin with some account of the progress which is made from the first to the perfect formation of the seed. Mrs Ibbetson has, with much industry, examined its progress from the earliest period of its existence, and detailed the results of her observations in several papers in *Nicholson's Journal;* but our limits do not permit us to give so full an account of them as would do her justice; and as most of the observations were made with a highly magnifying solar microscope, we shall confine ourselves chiefly to the less minute and sufficiently accurate details of other physiologists.

Stru

According to their observations, soon after the formation of the external membranes, the albumen and vitellus are deposited; in some cases both are deposited, in others only one. In the midst of this albuminous matter is the small rudiment of the plant, called the corcle, with which it freely communicates, by means of vessels which support and nourish it. The inner structure of this corcle differs at different stages; at first it consists of a thin glary fluid; afterwards becomes more concrete, regularly organised, and at last displays the rudiments of the radicle and of the plumule.

The perfect seed, as has been already described, is composed of cotyledons, a corcle, membranes, and vessels. (Part I. Sect. ii. Art. 1.) Fig. 1, 2. Plate lxvi. It is retained in its proper situation by an umbilical cord. If a section be made of a germinating seed, a hollow channel will be observed in the cotyledons, which receives the name of *ductus chyliferus.* It communicates with the rostel, and terminates in the pith. This duct is supposed to convey nourishment to the young plant.

All plants are not provided with a rostel, as Willdenow ascertained in the *Trapa natans*, but there is no proof that any part can exist without a plumula and cotyledons. The cotyledons are composed of cellular network, resembling small bladders curiously organised. This network contains the albuminous matter already mentioned, though more concrete, and is supposed to nourish the young plant in the earlier stages of its existence. Mirbel considers them as imperfect leaves, and assigns the following reasons for his opinion: When the albumen* is exterior to the substance of the cotyledons, they resemble leaves very strongly in point of structure; they are covered on their inferior surface with brown spots resembling those on leaves; they follow the same rule with the leaves on their relative positions. Thus when the leaves are articulated, they are also articulated. The leaves of most monocotyledons make complete sheaths round the stem, and in these sheaths all the parts are contained; and when the leaves do not envelope, membranous sheathes are found at the base of the stem, which are only imperfect leaves. These reasons do not appear altogether conclusive, although M. Mirbel thinks them so, particularly if Mrs Ibbetson's observations on the chesnut be correct, from which she has been led to infer, that the chief and sole use of the cotyledons is to screen the first leaves from the light and air until they are enabled to bear so powerful a stimulus. Willdenow describes three varieties of cotyledons in germinating seeds: 1. When the cotyledons grow out of the earth and assume the appearance of leaves, these are commonly called dicotyledons: a very common example is the *Phaseolus Vulgaris.* 2. When the plumula alone appears above the earth, as in the *Pisum sativum.* 3. When the two halves of the seed are not separated, but are pushed above ground, and on their side the plumula is evolved, as in the *Junci,* &c.

He has divided all corcles into five varieties; the difference of which chiefly consists in the mode of their bursting.

1. ***Dermoblastæ,*** such as have membranous cotyledons, which burst irregularly. This is in Fungi.

2. ***Nemoblastæ.*** Those in which the cotyledons divide into two halves, and burst into filaments, as in the *Algæ.*

3. ***Plexeoblastæ.*** When the cotyledons appear above ground divided, and are changed into leaves differing from all the other leaves.

4. ***Geoblastæ.*** When the cotyledons remain below ground.

5. ***Sphæroblastæ.*** Are those plants the cotyledons of which come out of the ground in the form of small globules fixed on a stalk, and have the plumula besides them, as in *Juncus bufonius, subverticillatus.*

Nature has not left the seeds of plants destitute of the means of insuring the existence of their species. Many of them are contained within impenetrable capsules; others are guarded by sharp spinous processes; (Fig. 89. Plate lxx.) and others, again, emit a remarkably fœtid odour. But even though thus secured against external violence, the propagation of the plant would be limited to the spot on which the parent stock first grew, were the seeds not conveyed to various situations, by several means with which they are provided. Many seeds are furnished with an elastic pericarp, (Fig. 95. Plate lxx.) which, on bursting, projects its contents to a considerable distance. In this number may be reckoned the wild cucumber (*cucumis sativus*), and many more. Nearly all the seeds of compound flowers are furnished with pappi, by means of which they are wafted to a considerable distance by the wind. Different kinds of birds, also, promote the propagation of plants, by swallowing the seeds, and afterwards voiding them in an undigested state. The same thing happens to some of the larger animals. Gerardin also states, that the magazines of seed laid up by some insects, also contribute to this end. The waves, no less than the winds, convey the seed from place to place. Besides these, numerous other less general means are employed by nature to maintain the different species, a detail of which cannot be made with much advantage.

Germination. When a seed is placed in a situation in which it has a due proportion of moisture, heat, and air, it absorbs water, produces certain chemical changes on the air, shoots forth a rostel and plumula, and is then said to germinate. The processes of germination cannot proceed for any time, if the seed be excluded from water, heat, and air; but, on the contrary, when present, the rostel of Linnæus, and the radicle of Grew, shoots forth, and forms the whole root, (Part I. Art. iv.) Fig. 1. Plate lxxi. The plumula of Linnæus is next evolved; the exterior integuments of the seed burst and decay; the cotyledons, according to Dr Thomson, become sugar; and the plant gradually assumes a more perfect form.

Soil. Various experiments have been made on the soils in which plants will grow; and though it seems that every plant affects some particular soil, yet all seeds will germinate and flourish, to a certain extent, in any material in which all the conditions above stated can be obtained. Thus, it is well known, that sallad plants will grow on flannel. Sukkow made them also grow in pounded fluat of lime and barytes. M. Humboldt succeeded in inducing vegetation in metallic oxides, in sulphur, in powdered coal, and in various other matters.

Heat. A certain portion of heat is also requisite; and almost every plant requires a different quantity. It is, however, worthy of remark, that although many seeds will grow after having been frozen, yet none have been ever made to germinate at or below the freezing point.

Water. The absorption of water is an indispensible part of the germinating process. It is effected partly through the pores of the exterior membranes, and partly through the small aperture in the *hilum.* In the first instance, it appears to be a mere mechanical operation, which Mr Ellis, in his work already alluded to, properly distinguishes by the name of *imbibition*; but afterwards a living action takes place in the vessels, and the fluid is circulated through the cotyledons, and is finally conveyed to the embryo plant. M. Sennebier has fully established the existence of this last fact.

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* The *albumen* constitutes the bulk of some seeds, as in grasses, corn, palms, lilies, the sole office of which is to nourish the embryo plant until the root be formed. In such cases it is wholly independent of the cotyledons. It is said to be wanting in some plants, as in the cucumber tribe, though it is highly probable that it has only not been hitherto detected. The albumen of the nutmeg is remarkable both for its singularly variegated appearance, and its odour. The *vitellus* is always situated between the albumen and the embryo, when the former is present, and is supposed to perform analogous functions. For the fullest examination of this substance, we are indebted to the justly celebrated Gaertner.

Light.

Light has been supposed by Sennebier and Michelotti to be injurious to germination; but de Saussure seems to have established, that the injurious effect is owing to the accumulation of heat, which is inseparable from the solar rays.

Preservation of seeds.

It is a valuable fact, that many seeds will keep for a very long period, when deprived of moisture: the period, indeed, as far as we can ascertain, seems to be unlimited. It is stated, on the respectable authority of Ray, that, after the great fire in London in 1666, *Sisymbrium irio* of Linnæus covered the walls of some buildings which had been burnt. From their situation, they must have lain for at least some hundred years. It is remarkable, that this plant was very scarce in London previous to the fire.

Gerardin reports, on the authority of M. Desfontaines, that a similar event occurred at Versailles when an old tower was pulled down. The same author mentions another fact which came under his own observation, in the "*Jardin des Plantes*," and which confirms the statements already made of the power which some seeds possess of retaining this vital principle for a considerable time. "In rooting up, (says he) some years ago, in the garden of plants, an old tree, the species of which could not be discovered, a circular trench was made by throwing aside the earth which came up with it. It was remarked, that in this earth there were different kinds of seeds which were well preserved; (they had no doubt been there, as it were in a depôt, since the time when the hole in which the tree was planted had been filled up with earth in which they were;) they were sown, they germinated, their stems were developed, and they produced flowers and fruit."

Dr Smith also states, from Mr Fairbairn of Chelsea, that frequently species long lost have been recovered by digging deep in old established botanic gardens. Humboldt ascertained the following curious and valuable fact connected with germination, that seeds which would not germinate under ordinary circumstances, very readily did so after immersion in oxymuriatic acid for about six or seven hours. As this acid is not always to be had, and as it may be of considerable importance to the practical gardener, we shall here insert the formula recommended by him, and given by Willdenow, for its extemporaneous preparation. A cubic inch, or about an ounce of water, a tea-spoonful of common muriatic acid or spirits of salt, two tea-spoonfuls of black oxide of manganese, must be well mixed together, and the seeds must be digested in this mixture at a temperature of from 18° to 30° Fahrenheit. As soon as the corcle appears, it is proper to take the seeds out, and to sow them in earth. Seeds thrive also in compressed air, in ammonia; but not in any fluid of which oxygen is not a constituent.

Some seeds have a wonderful power of preserving their vital principle; while others lose it almost immediately after turning ripe, unless planted. Mr Salisbury has established in a satisfactory manner, that seeds cannot be kept too warm, provided the nature of the oily juices be not altered by it. Gardeners keep melon and cucumber seeds for a few years, when they wish to diminish the luxuriance of their plants, and to obtain a greater profusion of blossoms and fruit. That this effect is produced is unquestioned, though it is not equally certain that Dr Darwin's solution of it is correct. The doctor supposed, that the cotyledons receive such injury from keeping, that they lose the power of nourishing the young plant, which consequently remains stunted during the whole of its existence.

Physiologists have remarked, with admiration, that the plumula always ascends, and that the rostel always descends. This curious fact has been variously explained; and Dr Darwin, with his usual ingenuity and boldness, supposed that the rostel is chiefly stimulated by moisture, and the plumula by air, and that each affected its peculiar stimulus. Whether that be the true explanation or not is of very little importance; but the fact is fully established by the experiments of Hunter, Duhamel, and Knight. Dr Smith is of opinion, that if soils were homogeneous, all roots would be perfectly perpendicular. When the rostel has made some progress, (which it seems to do, not by the expansion of parts already formed, but by the gradual addition to its extremity of a fluid which is transmitted from the corcle, and which gradually accumulates at that extremity,) the cotyledons swell, burst, and are carried up with the ascending stem, and for a time perform the functions of leaves. Such is the general process in dicotyledonous plants: it is different in the monocotyledonous, to which grasses, palms, and the orchides belong. In these plants the cotyledon never appears above ground, so that many are induced to believe them devoid of this organ. Dr Smith is disposed to adhere to the old division. We confess that the facts stated by Willdenow appear to us to carry considerable weight.

Scheele long ago ascertained, that carbonic acid gas was formed, and that a portion of the oxygen of the atmosphere disappeared during the germination of seeds. The subsequent experiments of Ingenhousz, Gough, Cruikshank, Saussure, and Ellis, have confirmed those of Scheele, and have fully established, that oxygen gas, either pure or in the state of atmospheric air, is essential to the germination of seeds; that it is converted into carbonic acid; and that the carbonic acid is equal in bulk to the oxygen lost. Mr Ellis has very properly pointed out the absolute necessity for keeping in mind the difference of the action which takes place in seeds without germination, and that with germination; in the first case a spontaneous decomposition induces the effect; in the last, it is the result of a living action, and of a subsequent chemical combination. He argues, and to us his arguments appear satisfactory, as no vessels in the seed have been detected proper to the absorption of gaseous fluids, and as there is a parity in the quantities of the oxygen lost and the carbonic acid formed, that it is expedient, at least until farther proof of the contrary opinion can be advanced, to conclude, that the conversion takes place exteriorly to the substance of the seed, and, consequently, that no absorption of oxygen ever happens.

A knowledge of these various facts, as well as of the peculiar habits of different seeds, may be of consialthough it is nearly universal. Some of the most curious facts relative to it will come under the Section on Leaves.

Bark.

Liber.

The bark or *Cortex* lies immediately below the cellular integument, and varies in the number of its layers according to the age of the plant. Thus, it consists of only one layer in a plant of one year old, of two in one of two years old, and so on. The innermost layer performs some of the most important vital functions, and is called *liber*, from some fancied resemblance to the leaves of a book. Whenever a new layer is formed, the *liber* of the preceding year becomes a lifeless envelope, and is pushed outwards with the cellular integument. For a certain time, it appears that the older layers carry on some of the operations of the vegetable economy. The bark contains innumerable fine woody fibres, which distinguish it very essentially from the parts already described. In some plants, the intersection by means of the woody fibres gives it a singular and beautiful appearance: thus, in a plant of the Mezereon family, which grows in Jamaica, the bark may be separated into the form of very delicate lace. In some other trees, again, this structure is not discernible; while in others it may be seen, if the bark be exposed for some time to the action of the weather. Of this last we have a very good example in oak bark, which, after considerable exposure to the action of the weather, separates into thin layers, somewhat resembling the lace-bark of Jamaica. The bark of many roots is remarkably thick; as in the carrot, the whole of the red part of which is bark: in the parsnep and turnip it is also very distinct, particularly so in the former.

Wood.

Alburnum.

The part next to the bark is the wood; and although there are many roots which have no wood, yet as there are others that are chiefly composed of it, we shall here describe its characters, and afterwards mark the exceptions. The wood consists of concentric layers, which in most trees is remarkably distinct. These layers are hardest near to the pith, and constitute the true wood. When not quite hard, and of a different colour from the internal part, it is called the *alburnum* by philosophers, and the sap, or sap wood by workmen. This *alburnum*, according to the observations of Mr Knight, appears to be generated by the action of the cortical vessels, and performs important functions in the vegetable economy, as will be more fully detailed hereafter. The experiments of Duhamel generally confirm this opinion. Different woods exhibit considerable variety as to hardness, as well as to thickness: in many trees, indeed, one side of the layers is so much broader than the other, that the medulla or pith is not placed in the common centre of the root. The tenacity of the wood is owing to innumerable vessels, such as will be hereafter described, that pass from one part to another; in general, they have a longitudinal direction. These vessels perform several functions, which also shall be discussed hereafter. The cellular substance binds the whole firmly together. The colour of the wood differs very considerably in different plants: this we have strikingly illustrated in two familiar examples, the oak and the ebony; in the former of these it is brown, in the latter black.

It is the general opinion, that each of these concentric layers is the production of one year; and this opinion derived much weight from the authority of Linnæus. It is supposed that the hard exterior layer is formed by the cold of winter; so far, indeed, has this opinion been carried, that it has been asserted, that the date of particularly severe winters may be ascertained by the particular hardness of the layers formed during them: some have gone still farther, and add, that the northern side of a tree may be known by the same means. Duhamel, Mirbel, and Gerardin contend against this doctrine. The former states, that a tree sometimes will not form a single layer for a whole year, while at other times it will form a very considerable number. Dr Smith does not consider the facts adduced by the French physiologists sufficiently strong to subvert the whole of the ancient opinion; and he adduces the uniform appearance of the wood of tropical trees, and of evergreens, in support of it. At the same time, he readily admits, that Duhamel has most completely exploded the belief of the influence of a northern aspect already mentioned. The occasional deviations from a uniform thickness may be accounted for, by supposing the organs of the thickest side to be more perfect than the others. This is probably the cause; but it must be admitted, that it is a mere hypothesis.

Forma

The manner in which this substance is formed has been long a fertile source of contention to physiologists. Grew and Malpighi supposed it to be formed from the bark, and Dr Smith adopts this opinion. Hales supposed that a new external layer was annually formed by the wood itself. Linnæus taught that the pith secreted annually a new internal layer. Mirbel has given some amusing observations on it. Duhamel ascertained, by making an incision into the bark of a tree, and by introducing pieces of tinfoil beneath it, that, after some years, the new wood is exterior to the tinfoil. Dr Smith has seen the original specimens in the Museum at Paris.

Dr Smith records another experiment made by Dr John Hope, the late Professor of Botany in the University of Edinburgh, which decidedly supports those of Duhamel. We shall give the account in Dr Smith's own words. "The bark of a willow tree, three or four years old, was carefully cut through longitudinally on one side for the length of several inches, so that it might be slipped aside from the wood in the form of a hollow cylinder, the two ends being undisturbed. The edges of the bark were then united as carefully as possible, the wood covered up from the air, and the whole bound up to secure it from external injury. After a few years the branch was cut through transversely. The cylinder of bark was found lined with layers of new wood, whose number added to those in the wood from which it had been stripped, made up the number of rings in the branch above and below the experiment."

The result of all the experiments made by Duhamel confirm the facts stated. The exception which he gives of the bark being produced by the wood is solitary, and in some respects objectionable. The following is the experiment alluded to. On taking off the bark of a cherry stock, he observed a number of small gelatinous points on the surface of the wood, which were followed by a new bark, and by a layer of new wood; whence Mirbel concludes, that the latter is actually derived from the *alburnum* and wood, which first produces the *Cambium* of Duhamel, or the gelatinous matter already noticed. So that there is a regular circle of operations, the first of which it is not easy to determine. Perhaps the safest conclusion that can be deduced will be, that, under certain circumstances, the nature of which is completely concealed from us, the wood does form bark. It still remains to be decided whether or not this is the ordinary process of nature: we confess that it does not appear to us to be so.

In the midst of all those parts which have been just described, is the pith, or medulla, which is a light, spongy, soft substance: in roots it is generally tolerably firm and juicy, and of a pale green or yellowish colour. Its density and thickness, and other properties, vary considerably in different plants, and even in the same plants at different seasons. It is completely surrounded by vessels. Its supposed uses are nearly as numerous as the physiologists that have attempted to discover them. Duhamel considered it of no importance, except in so far as it combined the various parts of the plant. Linnæus, as we have already stated, taught that it produced the wood, and, indeed, he considered it the source of all the energy of vegetation. Mr Knight thinks that the pith supplies moisture to the plant when required. Mirbel says that it contains vessels. Dr Smith is inclined to consider it analogous to the nervous system of the animal kingdom. The analogy is, however, very imperfect, for Mr Knight found that a branch might be deprived of the pith without sustaining any injury.

ascular ystem.

When the different parts already described are examined, their particular structure is found to be singular and beautiful. We shall first detail the result of M. Mirbel's examination, which may be considered as containing the general features of the vegetable structure; and we shall then give the valuable observations of Mr Knight and others, which afford a more continuous view of the subject. Mirbel describes the vegetable system as composed of cellular substance, and tubes, (*Tissu cellulaire*, and *Tissu tubulaire*,) and these he depicts with much minuteness. His own description of the cellular substance is so clear, that we shall, without hesitation, avail ourselves of it. "Ce ne sont point des petites outres ou utricules, comme le disent, la plupart des auteurs, *c'est une membrane qui se dedouble en quelque sorte*, pour former des vuides contigus les uns aux autres. Dans les parties ou ces cellules n'eprouvent ancune pression etrangere, elles sont toutes également dilateés, leurs coupes transversales et verticales présentent des hexagones semblables aux alvéoles, des abeilles; chaque côté de ces figures géometriques sont communs á deux cellules, et tout le tissu est d'une regularité admirable, mais lorsqu' une force étrangere comprime le tissu, les hexagones se deforment et font place quelquefois a des parallelogrammes plus ou moins alongés. Les parois membraneuses des cellules sont tres minces et sans couleur; elles sont transparentes comme le verre; leur organisation est si delieé, que les microscopes les plus forts ne peuvent la faire apperçevoir. Elles sont ordinairement criblées de pores dont l'ouverture n'a certainement pas la trois-centieme partie d'une ligne, ces pores sont bordés de petits bourrelets inegaux et glanduleux, qui interceptent la lumiere et la refractent avec force lorsqu'ils en reçoivent les rayons. Le tissu cellulaire est spongieux, elastique sans consistance; plongé dans eau, il s'altere, et meme se detruit en peu de tems; il se reduit alors en une espece de mucilage. Les pores etablisent la communication d'une cellule à une autre, et servent a la transfusion des sucs, qui est extrêmement lente dans le tissu. Je dois même observer qu'il n'est pas conducteur des fluides répandus dans le vegetal, et qu'il ne produit rien par lui même."

Tubes.

In the early period of vegetable life, the cellular net-work forms a number of lacunæ, which, when more matured, become a regular series of vessels, which have been described with great care by M. Mirbel. Of course, these tubular vessels exist in the root, where they may be perceived by making a transverse section of it. They differ in monocotyledonous and dicotyledonous plants: in the former they are always found in the middle of woody fibres, or compose the greater part of them; while, in the latter, they appear to be dispersed at random throughout the wood. Sometimes they form regular groupes, at other times they are arranged in concentric belts; and they are particularly abundant around the pith. They pass from the main trunk of the root to all the fibres and appendages, and occasionally form medullary rays.

Mirbel describes four kinds of these large tubes, 1. The simple. 2. The porous. 3. The false air vessels. 4. Air vessels. (Plate LXXI.)

Simple.

The first are merely continuous tubes, which commonly contain those resinous and oily juices which are known under the name of "*proper juices*." This kind is most remarkable in green plants, as in the *Euphorbiæ*, in *Periploca*, and in all plants containing very dense fluids. They are most distinct in the bark.

Porous.

The coats of the second are penetrated by small holes, arranged in regular parallel series around it. The use of this species is not so well understood. It is found chiefly in hard woods, such as the oak.

False air vessels.

The false air vessels are tubes transversely cut by parallel fissures, which give it the appearance of having been formed by a series of rings placed above each other, although, in reality, they cannot be separated from each other. These tubes are destined to perform the same functions with the porous tubes. They are most numerous in the vine, the substance of which is extremely porous.

Air vessels.

The air vessels, which appears to be an improper name, resemble the tracheæ of insects. The first are formed by the turnings of fibres from right to left. Mirbel declares that he never could discover from a transverse section any opening of a tube; but that occasionally an ellipse, or the union of two fibres by means of a membrane, were sufficiently distinct. This same author denies the assertions of Malpighi and Reichel, respecting the existence of strictures in the tracheæ, and ascribes their error to optical deception. They are chiefly found around the pith, and in the softer parts of the vegetable. A very simple experiment will exhibit this organ with great distinctness. Take a young branch of any tree, and twist it, and break it partially across, the spiral parts of the tracheæ will then be unrolled, and will be very evident. They will resume their natural appearance when the two ends are brought together, so that they may be allowed to contract. This contraction is extremely well seen in leaves and their foot-stalks, except in those of the *Butomus umbellatus*, which never contract. They serve also to convey nutritious juices to the plant.

Small tubes. In addition to these larger tubes, there are some which Mirbel calls the small tubes, which are formed by the membranes of the cellular net-work. They appear to regulate the density of the wood; for in proportion to the greater or smaller number that exist in it, will the wood be hard or soft. They commonly contain colourless and limped juices, and occasionally those that are coloured and thick. Examples of each of these are to be had in the vine and in the pine.

Such is the result of M. Mirbel's examination of the particular structure of the whole vegetable. Much more has been done in this country; for the mere existence of tubes and cells has not been ascertained without ulterior views. We shall therefore now give a brief sketch of this more particular detail.

Flow of sap. It is sufficiently obvious, that certain fluids exist in plants; and that these fluids are conveyed from one part to another, at particular seasons of the year, seems also to be perfectly ascertained. This fluid is called the sap, and it is observed to flow most freely before the appearance of the leaves: an experiment, illustrative of this fact, is easily made on the vine. From this fluid, the various vegetable matters, such as sugar, gum, acids, and others, are formed: it may therefore be considered analagous to the blood of animals. Vessels. Our present business is to trace the curious arrangement of the vessels through which it passes, and then to describe the whole of the circulating system. Opinions respecting them. Much diversity of opinion has appeared on this subject, and it is only very lately that accurate notions have been entertained respecting it. Grew. Malpighi. Malpighi and Grew considered the woody fibre which composes the great body of the vegetable kingdom, as the sap vessels; and they employed many plausible arguments in support of their opinions: the number, strength, uniformity, and universal distribution even in the most delicate parts of the plants, were all urged; and although no tubular structure could be discovered, they were considered as the only vessels, because no others could be detected, and it was certain that a circulation was carried on. Duhamel. Tournefort. Duhamel adopted this opinion; but Tournefort finding the above difficulty press much upon him, resorted to the very singular theory, that the fluids were conveyed through the plant, by a simple capillary attraction. Darwin. Knight. Darwin, in his *Phytologia*, seems to have given the first hint of the opinion, which Mr Knight has confirmed by a series of ingenious experiments, conducted with his wonted accuracy and fidelity. By breaking gently a twig of a young tree, and by separating the two parts, the vessels will be observed to connect the broken extremities even by the naked eye. Central vessels. These vessels are called, by Willdenow, the adducent vessels, (*vasa adducentia*,) and by Mr Knight, the central vessels. They are also the tracheæ or air vessels of Mirbel and others. They have a spiral form, and have not hitherto been seen on the bark, nor do they appear at the more advanced stage of a branch in which they formerly abounded, for they become woody when the parts grow older. Alburn vessels. Besides the central vessels, Mr Knight has described another set that traverse the alburnum, whence they are distinguished by the name of alburnous. Through them the sap also ascends; for the destruction of a circle of bark does not prevent the formation of buds and leaves; "but," says Mr Knight, "the alburnous vessels appear to be also capable of an inverted action, when it becomes necessary to preserve the existence of the plant. Cortic vessels. The cortical vessels of Mr Knight, which can scarcely be considered the same with the *vasa reducentia* of Willdenow, (although they are said to perform the same function,) exist in the bark, and serve to reconvey the circulating sap to the root. It is suspected, that there may be two sets of these vessels, one which nourishes the bark, and another that secretes particular fluids in the bark. Lymphatic vessels have also been described; but we have met with no satisfactory account of them.

Uses. The functions of the vessels of plants have been as variously described as the organs themselves. Malpighi supposed them to be air vessels; Grew declares, that they sometimes contained moisture; and Duhamel suspected that they contained "highly rarefied sap." The experiments already alluded to of Darwin and Knight, have, to a certain degree, determined their uses. The former placed twigs of the common fig tree into a decoction of madder, and on taking them out after some hours immersion, and cutting them across, the coloured fluid was found to have ascended into each branch, and the cut ends of the vessels formed a circle of red dots around the pith, and these vessels again were surrounded by other vessels containing the milky juice, so very remarkable in the fig tree. The latter (Mr Knight,) made similar experiments with cuttings of the horse chesnut, and of the apple tree, with an infusion in water of very black grapes. The result corresponded with those of Darwin. Course vessels. He, however, pursued the investigation still further, and traced the fluid into the leaves; and during the whole course it did not give the slightest tinge to the bark, nor to the sap between it and the wood. The pith was very slightly, if at all affected. The radicles are probably elongations of these vessels, which absorb the proper fluids from the earth, and convey it into the body of the root, where it becomes sap by some process which we cannot develope; it is then conveyed to the stem and leaves, where certain other changes take place, that are to be hereafter noticed. The functions of the alburnous vessels appear to be twofold, according to the views of Knight. At one period, they convey sap to the leaves in common with the central vessels: and during the winter, they serve as reservoirs of the juices of the plant, which, having undergone certain changes in the leaves, are there deposited until the approach of spring, when they contribute to the formation of those new parts which are necessary for the living action of the vegetable.

The cortical vessels seem to carry the sap back to the roots through the bark, and, in its course, it possibly forms *Alburnum*, or at least furnishes the materials. All this, however, is a mere probability, as we know very little with certainty connected with it.

It is difficult to determine by what means the sap is propelled through the vessels: the agitation of the winds, the form of the vessels, the action of heat, the pressure of certain plates, called silver grain, in the oak, are all supposed to contribute to this end; and very possibly they do this to a certain extent. We confess, however, that they do not appear to our minds adequate causes. It is a matter of some moment to ascertain how the function is performed; but our knowledge of facts is so very imperfect, that it is impossible to frame even a reasonable hypothesis on the subject. In this, as in every other department of physics, men are too prone to step beyond the limits within which their actual knowledge should confine them.

nae.

Lacunæ are said by Mirbel to exist in vegetables: he adds, that they are formed by the laceration of the membranes of the cellular substance, and that they prevail chiefly in water plants, where they seem to promote vigour by diminishing the quantities of absorbed fluid, and thus enabling the vessels to perform their functions with better effect. These organs are very well seen in the genus *Potamogeton*.

ads.

It is a matter of doubt whether glands exist in roots, or in any part of a plant, observation not having hitherto detected them. The functions, however, which go on in vegetables, render their existence highly probable. M. Mirbel has seen in the stem of the *Myriophyllum*, some small fleshy bodies, which may be glands.

res,

Pores penetrate the membranes, and seem to carry on, or at least to promote, evaporation and absorption.

It appears from the preceding detail, that the vascular system of plants is annual, which, of course, extends to the roots as well as to every other part. New vessels appear to be annually formed, and to be coeval with the parts that they are destined to nourish and support. How this is performed, it is most improbable that we shall ever be able to develope. Hereafter we may discuss more fully all the general facts and deductions which are connected with this most interesting, though imperfectly understood, branch of our subject. The preceding details refer, as is sufficiently obvious, exclusively to those roots which Willdenow calls *rhizomatous*. We shall now proceed to examine briefly, the peculiarities of the structure of other roots, which are perhaps of more importance, on account of their various economical uses. The principal roots that we may consider exceptions to the perfect structure, are the following,—the tuberous and the bulbous. (Part. I. Sect. ii. Art. 4.)

er.

Of each of these there are several varieties; and it will be sufficient to detail the peculiarities of the most perfect of each, as we have done in the *rhizomatous* root; and in the first place, we shall mention the *tuber*. The knobs of which this root is composed, are reservoirs of sap, and of vital energy. According to Mr Knight's experiments, they are formed by sap descending through the cortical vessels; and from some further experiments, the same gentleman has been led to consider the tuber as performing functions similar to those of the *Alburnum* of branches, except that it retains life with greater tenacity. The runners from the tuber which rise, are analogous to the stem of the plant, and will perform the same functions. Tuberous roots are, in general, propagated with remarkable ease. In some instances where there are several of them, one of the knobs produces the herb and flowers of the present year, the next performs the same office in the following year, while a third is formed to carry on a similar operation in the third year. The root of the *Satyrium albidum* consists of three pairs of tapering knobs, which flower in succession. Dr Smith refutes the usual belief, that all the plants of the *orchis* tribe, which have biennial roots, cannot be transplanted, as he has seen several of them undergo removal when in full flower, without the least injury. The failure in the *Satyrium albidum* is well explained by the same gentleman, by the fact, that one of its three pairs of knobs is always in a state of activity.

Bulbs,

Bulbs have been already defined, (Part I. Sect. ii. Art. 4.) Their functions are precisely the same with those of tuberous roots. The radicles which they send out, appear to be derived from the sap, which descends from it. It is a singular fact, that some bulbous roots change their characters completely, when removed from the situation in which it is evident that nature designed them to thrive. In general, they inhabit dry, sandy soils, as their structure eminently fits them for resisting drought. The converse of this also happens: Thus the *Phleum pratense* has a fibrous root when growing in wet, marshy ground, but on being removed to a dry situation, it acquires bulbs, and becomes the *Phleum nodosum*. Dr Smith mentions the same fact with regard to the *Alopecurus geniculatus*. These are not merely curious, but, if properly followed up, may be most important facts for the cultivator.

Parasitic roots.

All the varieties of roots are adapted to their native soils, and need no particular explanation. We may here mention *instar omnium*, that the roots of some parasitical plants, chiefly of the genus *Epidendrum*, are thick and fleshy, so that they are not only firmly attached to the nourishing plant, but are also capable of deriving a larger supply of nutritive matter. All roots do not derive their support from the earth, as those of parasitic plants and of algæ. Of the former, the most remarkable is the *Epidendrum flos aeris*, which Loureiro saw in India, vegetating for several years hanging from the ceiling. Although it has been found, that seeds (Part II. Sect. i.) will germinate in almost any material, to which heat, moisture, and air can be added, yet it is equally certain, that they will thrive better in some situations than in others; and what is very remarkable, the roots will move from an unfavourable to a favourable soil, should they be planted in the immediate vicinity of the latter. Mr Knight has lately made some interesting experiments on this subject. He planted parsneps and carrots in a poor gravelly soil, above a rich loam: the radicles of all penetrated to the latter, and fixed themselves eighteen inches below its surface. Willdenow mentions this *selective* property, if it may be so called for the want of a better expression, in a strawberry plant, which being placed in the only sterile spot of a garden, sent forth innumerable stalks and roots to the more fertile surrounding ground.

It is a fact familiar to every one that has traversed hilly wooded districts, that trees, particularly pines, which grow on bare rocks, will send out their roots in every direction so as to reach the soil below. It is difficult to explain the manner in which this is effected: it certainly cannot be referred to any voluntary power; a mere change of position might be referred to such a power, but it is impossible to conceive any increase of parts from any effort of will, supposing its existence to be unquestioned, which is not the case. Mr Knight resolves it on mechanical principles. Objections, however, will probably be as strong against this hypothesis as against the other supposition. The truth is, that the fact is all that we can know, until we can render the vital principle palpable to our senses, which none but a madman can conceive possible.

Excretion from roots.

The root is also supposed to exhale or excrete matter, as it is not uncommon to find the earth surrounding it impregnated with a gelatinous matter.

We have now seen that the radicle, or true root of physiologists, consists chiefly of cellular substance, and of a continuation of the sap vessels, through which the food of the plant is conveyed into its circulatory system; we have also seen that the whole of the root, commonly so called, is composed of various solid parts, similar to those of the stem, which are pervaded by numerous cells and continuous vessels, and are probably furnished with a secretory apparatus. Each of these several organs we have found to perform important functions; and although we can only catch an imperfect glimpse of them, we have seen enough to convince us, that inscrutable wisdom alone could have given existence to such beautiful contrivance.

We are not aware of the particular chemical changes which are produced in the root: the general changes induced by vegetation (in which the root may be considerably concerned) shall be discussed after we have completed our more particular views of the vegetable system.

Sect. III. *Of the Stem.*

Stem.

We now come to the stem, or *caudex ascendens*, (Part I. Sect. ii. Art. 6.) one of the most valuable parts of the vegetable kingdom, in whatever point of view we regard it. Between the stem and the root lies the intermediate stem (*caudex intermedius*), and which is composed of the same parts and vessels with the stem itself.

Structure of ligneous stems.

Consistently with our general plan, we shall now examine the structure of ligneous stems, which are the most perfect. Among these are the trunks of trees; which consist of the cuticle, the bark, the *liber*, the *alburnum*, the wood, the pith, and the various vessels which have been fully described in the preceding Section. The chief difference between these parts in the root and in the stem seems to be, that in the latter they are more distinctly characterised, and consequently less easily confounded with each other. The vascular system is also a mere continuation of that of the root, and cannot be described in any other way than as a small part of an extensive series. Mrs Ibbetson has bestowed much attention on this subject, and divides the trunk of a tree into 1. Rind; 2. Bark, and inner bark; 3. Wood; 4. Spiral nerves; 5. Nerves, or circle of life; 6. Pith. A variation in the nomenclature in such an outline as we could give, would be the chief apparent difference between this arrangement and that which we have sketched. She indeed details minutely a variety of topics, into which, however, we cannot enter, for the same reasons that influenced our plan in the description of seeds. We may here remark, that it is a matter of no trifling import to attend to some general nomenclature in vegetable physics. The diversity of names now in use for the same organs, has, without doubt, given rise to much of the vagueness of all researches in this branch of science. Correctness and precision are peculiarly required in all physiological inquiries. Ligneous stems have been subdivided into several species, of which it is right to take some notice, as the subdivisions are natural, and are commonly adopted even in familiar conversation. They are as follows: 1. Trees; 2. Shrubs; 3. Pine tribe; 4. Palms. The first, second, and third, contain all the parts described as forming a perfect ligneous stem, and are distinguished by their respective modes of branching and of bearing leaves. The last is composed of those plants which are usually called monocotyledonous, to which the palms belong, whose structure is so very remarkable, that we shall enter pretty minutely into the detail of their peculiarities; but, in the first place, it will be necessary to determine the characters of all the other species of ligneous stems. Trees and shrubs are distinguished from each other by the disposition of their branches, and are, as might be expected, mutually convertible by change of soil, of climate, or any other variation in the culture. In both buds are formed at the bases of the foot-stalks, which shoot out and become branches; but in the former these branches are chiefly confined to the higher parts, and in the latter, to the lower parts of the stem. It is impossible to point out the boundary that separates the two, as they pass so insensibly into each other. The stems of trees and shrubs originate in the plumule (Pl. LXXI. Fig. 1.), as every ascending stem does; every year new organs are formed, and the increase goes on so long as the vitality of the plant is in full vigour. No certain limit has been hitherto discovered to the growth of ligneous stems, for we see them increasing in magnitude far beyond the recollection of man, and we know not when it is to cease. Two facts connected with this subject has been determined, and it is this, that there is great variety in the dimensions of different species, and that some possess the power of increase very differently from others. One class of trees vegetate with extraordinary rapidity; of this we have remarkable examples in the poplar and willow: others again are as noted for the slowness of their growth, as the oak. Many instances of the enormous magnitude of trees are recorded. Pliny mentions a tree (*Platanus*) in the hollow trunk of which, Lucian the Roman consul supped and slept with twenty people. Humboldt saw a large tree, the diameter of which was 17 feet.

Divisio

Trees.

Shrubs.

Pl. LX

Fig. 1.

Size.

granted, that there is much ingenuity and beauty in the other arrangement; but we do not consider it so fit for practical purposes.

Chemical functions.

The stems of vegetables transpire an aqueous fluid, and probably perform certain chemical functions analogous to those of the leaves. We shall defer our observations respecting them, until we come to discuss the subject in the Section appropriated to leaves and their functions.

The anatomy and physiology of the stem having been thus briefly explained, there only remain a few general facts to be stated, which are more immediately connected with it, than with any other department of vegetable physics; because almost all that is known of them is derived from the examination of the stem.

Age.

The enormous magnitude of some vegetables has been already noticed; we know still less of their respective ages. Many plants, indeed, are so short-lived, that an individual may complete many series of observations in the course of a life of even moderate duration; and from analogy we conclude, that the same general laws, differently modified, do influence the whole of this class of beings. From the examination of the layers of wood annually deposited, it has been ascertained, that olive trees will live in favourable situations for 300, and oaks for 600 years. Gerardin reports, that during the revolutionary war with Spain, a French officer observed on the Pyrenees, in a transverse section of a tree (but of what kind is unknown), no less than 2,500 circles of wood. Gerardin very properly adds, that no other authentic testimony has confirmed this statement.

It is said that Greuw, in the year 1400, cut his name on two *Boababs*, and that Petiver did the same 149 years after. Adanson saw these names in 1749. The trees, according to his calculation, have only increased seven feet in their circumference in the course of 200 years. From which it has been inferred, that as trees of the same kind sometimes acquire a perimeter of 435 feet, they live many thousand years. From the above facts, we may certainly conclude that our knowledge of this subject is extremely small.

Inverted stems.

In the course of ascertaining how far a circulation of sap is carried on, some interesting facts have been determined by Mr Knight, and others with regard to the effect of inverting stems, or, in other words, of planting the superior part of the stem, and thus converting it into a root. If the stem of a plum or cherry tree, which is not too thick, be bent, and the top be put under ground, while the roots are gradually detached, in proportion as the former top of the stem becomes firmly fixed in the soil, the branches of the root will shoot forth leaves and flowers, and in due time will produce fruit. Mr Knight's experiments point out, that although the sap vessels seem thus to invert their action, yet they still retain so much of their original characters, as to deposit new wood above the leaf buds, being precisely the place in which deposition would have occurred, had the position of the plant been natural: the relative situation to the leaf bud is different, being *above*, instead of *below* it.

Dr Smith's conjecture, that new vessels are progressively formed, appears highly probable, and will do away some of the difficulties.

Gardeners frequently perform a very simple and useful operation, which is called grafting. It consists merely in introducing a small branch into another stock of the same genus; the vegetative process goes on, and very commonly the fruit produced is extremely fine, while that from a common seedling plant is unfit for use. It is difficult to explain the operations of nature, perhaps impossible; but we cannot help being struck with the strong analogy between grafting and that of transplanting teeth and other parts in animals, as the late Mr John Hunter sometimes illustrated in a whimsical enough manner. Miller mentions the fact, which indeed is well known to practical gardeners, that those trees only can be grafted on each other with success, that belong to the same tribe. This resembles the inability of distinct tribes of animals to propagate with each other.

The bark has a lateral productive power, when only a part of it has been destroyed. This bark it has been shewn deposits new wood below it. The late intelligent Mr Forsyth, of Kensington Gardens, applied this fact to actual practice; and restored many large forest and fruit trees, the wood of which had been completely decayed, by gradually paring away the old wood and bark, and by then excluding the air with an excellent composition contrived for that purpose.

Sect. IV. *Buds.*

No part of the vegetable structure has been examined with more accuracy than that of buds (*Gemmæ*) from the time of the faithful and diligent Grew, to that of the discriminating and candid Knight, and yet it is very singular that little was known of their physiology until the experiments and observations of the last gentleman were made public. To him, therefore, we are indebted for some of our most valuable knowledge on this subject.

A bud is that part which "contains the rudiments of a plant, or of part of a plant, for a while in a latent state, till the time of the year, and other circumstances, favour their evolution." From buds, then, an entire plant may be produced, if placed in favourable circumstances, or only a branch, or leaves, or flowers. We can, however, reckon no more than two kinds, those that produce leaves, and those that produce flowers, as will be sufficiently seen in the sequel. There is the closest analogy between these organs and bulbs; so close, indeed, that Mirbel, and some others, arrange them together. Of this we shall speak more at large when treating of the origin of the former. Practical cultivators mark distinct characters peculiar to each kind of bud. Those that produce leaves are small, long, and pointed; the flower buds, again, are thick, short, and round. It appears probable that some unknown agents influence the formation either of flower-buds or of leaf-buds, or rather that some circumstances will cause the evolution of either of them from the same bud. A fact recorded in the Linnæan Transactions in some measure favours this opinion. The *Solandra grandiflora*, a native of Jamaica, had been long cultivated in the English stoves, and propagated by means of cuttings; but none of the plants ever displayed any signs of fructification. They had been always well supplied with water. One plant, by accident, was left without being watered in the dry stove at Kew: the consequence was, that the branches were much stunted in their growth, and flowers were produced. The experiment has been frequently repeated with success. It appears, that whatever checks the luxuriance of the leaves, tends to the formation of flowers and seeds.

For the purpose of converting leaf-buds into flower-buds, various expedients may be used with advantage; such as scoring the bark to the wood very deeply with a knife, twisting a wire tightly round the stem, or by cutting off a cylinder of the bark, and replacing it with a bandage.

cula-

It is said that there is an intermediate species of bud, which retains some of the characters of each. A striking difference has been noted between the leaf and the flower-buds; the first may be removed with impunity from its original situation, and placed in the earth, where it will vegetate with luxuriance; but the last uniformly dies. Both may be removed to another stock with success. This operation is called budding, or inoculation, and is well known to gardeners. Each bud may be considered a distinct being, containing parts precisely similar to those of the parent tree, which, when favourably situated, will develope themselves, and form a plant retaining all the peculiarities of the parent. If those qualities are such as will constitute a variety, they will also be perpetuated; and of this, we have many familiar examples in the various fruit trees commonly cultivated in our gardens, on most of which, budding is the only means of procuring good fruit. The branch formed by the inoculated bud alone yields proper fruit; nor is the stock, on which the budding has been performed, in the least degree altered. The crab, on which the finest apple has been budded, still remains a crab: thus proving, that it serves merely as a source from which the young bud derives its nourishing matter; although it is highly probable, from the difference of the results, that that matter undergoes some peculiar elaboration, after leaving the vessels of the original stock. On this principle, we have known five or six different species of fruits budded on one tree, and which, in full fruit, exhibited a singular and beautiful spectacle. It is impossible to say how a bud torn from one tree, and put in the place of another bud in another tree, should become a perfect branch, producing flowers and fruit in the highest perfection; but attempts have been made to trace the various steps of nature in effecting her operations. Accordingly it is said, that after the fresh bud has been inserted into the wound, formed by the extraction of another bud, that the *Cambium* unites the two parts, forms a connecting medium for the vessels of the bud and the tree, and thus enables the vegetative process to go on whenever nature requires it. Mr Knight has noticed some facts worthy of record; and he states, that "a line of confused organisation marks the place where the inserted bud first comes into contact with the wood of the stock, between which line and the bark of the inserted bud, new wood, regularly organised, is generated. This wood possesses all the characteristics of that from which the bud is taken, without any apparent mixture with the character of the stock in which it is inserted. The substance, which is called the *medullary process*, is clearly seen to spring from the bark, and to terminate at the line of its first union with the stock." Mr Knight appears to have satisfactorily established the position, that each individual plant (for so it may be named,) produced by budding, has a determinate period of existence. This fact explains the hitherto inexplicable circumstance, of the gradual wearing out of several valuable varieties of apples and pears, which formerly abounded in the different fruit counties of England. Dr Smith mentions, that new varieties of Cape Geraniums raised from seed, in some of our green-houses, "can be preserved, by cuttings, for a few successive seasons only." Gardeners, too, know well, that many of the most hardy perennial plants require to be frequently removed from the seed, or the species would become extinct. Seeds, therefore, are the only source from which permanent reproduction can be obtained; and the varieties that exist among seedling plants have no reference whatever to the parent: it is impossible to say whence they do derive their peculiarities.

Position.

The usual position of buds is in the *axillæ* of the leaves, except in the genera *Mimosa*, *Gleditsia*, and a few others. The buds are opposite to each other when the branches or leaves are opposite, alternate when the latter are alternate, and terminal when the leaves are terminal. In those plants that have both opposite and alternate leaves or branches, the buds are commonly solitary.

External form and covering.

Various forms are assumed by different buds, according to those of the contained leaves; an admirable adaptation of convenience to beauty and regularity being always preserved. Nature has given different coverings to different vegetable productions, according to the peculiarities of their respective climates. In northern regions, the buds are almost uniformly clothed with scales, or with a downy substance; sometimes these are conjoined, besides being coated with a resinous matter. The horse chesnut is a good illustration of large well-formed buds. By means of these coverings, the young bud is enabled to brave the vicissitudes of the seasons, and to be ready to burst forth on the first approach of spring. This singular power of retaining its vitality, has been considered by some physiologists as the distinctive character of true buds. The most external of the scales are dry and hard, while those which are more protected from the influence of the weather, are soft and succulent. The protection afforded to the bud, by the resinous covering which occasionally envelopes it, is well shewn by a very simple experiment. Take a bud, for instance, of the horse chesnut, and close the part which has been just separated from the stock with wax, plunge it into water, and it will remain there without undergoing any alteration for a number of years.

In mild, or even warm countries, buds have no scales, as they do not require them. Those trees that form an exception to this observation, can thrive indifferently in any climate; so that the rule holds in all distinct cases. The scales are considered by many as imperfect leaves.

Internal structure. The internal structure of buds is said not to differ, in any respect, from that of the plumule, previous to its being detached from the seed. Some have fancied, that they have seen the rudiments of every part of the tree concealed in the bud; and Mr Ferber expresses high delight at having observed in the buds of the *Hepatica* and *Pedicularis vulgaris*, yet lying in the ground, the perfect plant of the future year. We are much inclined to question the accuracy of such very minute observers, and, of course, are more willing to impute any errors to optical deception, than any wish to mislead.

Origin. The bark and the pith have been generally considered the source of the buds; but the ingenious experiments of Mr Knight have set aside both of these hypotheses, and have established, as far as the present state of the science will permit, the doctrine, that they derive their origin from the alburnous portion of the tree. This gentleman first shewed, that they do not originate in the pith or bark; and also, that Duhamel's opinion of pre-existing germs being their source, is at least improbable. He then proves, that the "alburnous vessels at their termination upwards, invariably join the central vessels; and that these vessels, which appear to derive their origin from the alburnous tubes, convey nutriment, and probably give existence to new buds and leaves. It is also evident, from the facility with which the rising sap is transferred from one side of a wounded tree to the other, that the alburnous tubes possess lateral, as well as terminal orifices: and it does not appear improbable, that the lateral as well as the terminal orifices of the alburnous tubes, may possess the power to generate central vessels, which vessels evidently feed, if they do not give existence to the reproduced buds and leaves. And therefore, as the preceding experiments appear to prove, that the buds neither spring from the medulla nor the bark, *I am much inclined to believe that they are generated by central vessels, which spring from the lateral orifices of the alburnous tubes.*" By interrupting the circulation in the alburnum, buds may be artificially produced; and nature has provided means for their reproduction, in those cases where they may have been accidentally destroyed. Several curious facts on this subject may be obtained by an examination of the potatoe, which, like other tuberous roots, are studded with them.

Period of formation. Buds of all kinds are formed about midsummer; after which it has been stated, "that there seems to be a kind of pause in vegetation for about a fortnight." Darwin imagined that a store of nourishing matter is collected during that period, which produces the apparent pause. **Developement.** The season of developement is most usually that of the spring, when nature seems to delight in new products: it is then that the buds are evolved, and enter upon the important functions they are destined to perform. **Functions.** Nothing, however, is known of these functions beyond the general result. Branches, leaves, and flowers are produced by buds; but what are the particular operations by which these effects are induced? The answer is easy, but unsatisfactory. Buds transpire, and in all likelihood produce the same chemical changes on the atmosphere with the other parts of the plant.

Sect. V. *On Leaves.*

Leaves. Leaves constitute so large a portion of plants, are so very universal, and perform such important offices in the vegetable economy, that it will be necessary to enter at some length into an account of them. Independent of the various valuable purposes to which they are applicable, there are few vegetable productions more truly beautiful. The richness and variety of their colours, their admirable disposition on the branches, the variety of their forms, and even the shortness of their existence, contribute to rank them among the most interesting objects of Nature. When, however, we examine into and learn that these apparently simple and beautiful organs are subservient to the great end of vegetable existence, our more pleasurable sensations are converted into those of admiration and wonder.

External form. Leaves are distinguished by the various external characters of their form and substance. (Part I. Sect. ii. Art. 31.) That there is an immense variety in all these respects is sufficiently known; but the manner in which these diversities are induced is obscure and unintelligible. There can be no doubt that all these varieties of form in leaves are destined to answer some great and important end, although we have not been able to penetrate into the recesses of Nature: in some, however, the objects are so beautiful, and at the same time so obvious, that the most indifferent observer must be struck with them in an eminent degree. Thus, we find that the thick succulent leaf is most common in those countries, where a scarcity of water prevails; and, on the contrary, the thin dry leaf exists where water is abundant, and the exhalations go on more freely. The most common colour of leaves in the healthy state is green in all its shades. There are exceptions to this—many being red, brown, white, scarlet, yellow, and even black. On this topic some further observations shall be made in the latter part of this Section.

Internal structure. Leaves are composed of cuticle, parenchymatous substance, vessels of different kinds, and are commonly covered with a transparent varnish. The inferior surface, in general, is rougher, and of a less dark green than the superior one. The cuticle abounds in pores, although they are not discernible under ordinary circumstances. Mirbel indeed says, that the largest pores are on the under surface in the leaves of trees, but on both the under and upper surfaces of herbaceous plants. These pores answer a twofold purpose, as we shall afterwards see. The pulpy matter affords the colour to the leaf. The vessels, besides the pores, are continuations of the central vessels, which convey the sap to the leaves, and those vessels that reconvey that fluid to the bark and alburnum. This structure may be well seen, either by gently removing the external covering, and by microscopical observations, or by macerating the leaves, and then separating the pulpy matter from the vascular system. Very commonly natural skeletons of leaves are to be found, and they beautifully illustrate the arrangement of vessels. (See Pl. LXVII. Fig. 3.) Cæsalpinus fancied that the sole use of leaves was to shelter the fruit and blossoms from excessive heat or cold. This use they certainly fulfil to a certain extent; but there are besides certain great and important uses, which shall be discussed in their proper places. All the particular details respecting the form and structure of leaves, are to be found in Grew's works, in which the most faithful statements are afforded, not only of whatever is connected with this subject, but also on every point of vegetable anatomy.

Attachments.

Leaves are seminal, radical, or those attached to the branch. Their mode of attachment is not always the same, (see Part I. Sect. ii. Art. 31.) and it has therefore been selected as a distinctive character. To determine this peculiarity, it is necessary to examine the base with great care, as the attachment is always at that part of the leaf. Most generally stalks (Part I. Sect. ii. Art. 11.) are the means employed, and they vary considerably in form and dimensions.

Origin.

It has been already observed, that buds produce leaves, which, in the early stages of their existence, are rolled up, or folded in such a manner, as to occupy the smallest possible space; and it is worthy of notice, that this arrangement is uniformly the same in individuals of the same species, and in the species of the same genus. In this dormant condition they remain in the bud until the vital principle is roused to activity, by the return of the season best suited to its operations: In our temperate climate, that season is spring, when nature seems to awaken from the sleep of winter. In some cases the flowers precede the leaves; but more commonly the reverse of this takes place. In tropical regions, vegetation does not appear to undergo this cessation, and new leaves are formed apparently without the regular intervention of buds, at the coolest period of the year. If it be recollected, that plants of the same species, in similar situations, will develope their leaves at the same time, and that plants of different species perform this function at very different periods, it appears at least probable, that a particular temperature is requisite for each species. Adanson paid much attention to this subject, and he has determined that the same temperature is required by the same plant on all occasions, whether the season be early or late. On this fact he instituted a comparison between the periods of germination and of producing leaves, by which the farmer may regulate the sowing of his different crops. Linnæus obtained many facts relative to this point in Sweden, and has treated it with his usual vigour, in the *Amœnitates Academicæ*. It would be worth while to carry on, in every country, an extensive suite of examinations of this kind. Men of intelligence, accustomed to accuracy of observation, would be requisite; and there is no doubt that the result would be no less interesting to the philosopher, than useful to the practical cultivator. It has been proposed to name the table of observations thus formed, the *Calendar of Flora*, which, though a little fantastic, would answer sufficiently well.

After the bursting of the buds and the first developement of the leaves, their gradual increase and perfection proceed with various rapidity, according to the nature of the plant itself, and according to the favourableness of the climate or season. During the progressive stages, it may be conceived that numberless changes are momentarily taking place in the component parts of the leaf itself, as well as in the circulating juices that pass through that organ: but exclusive of those changes, there are some living properties peculiar to the leaf, so singular and wonderful, that we shall premise our account of the particular functions, by a sketch of them.

Irritability.

Definition.

General laws.

Part acted on.

Influence of habit.

The first and most remarkable of all the living phenomena of the leaf, is its IRRITABILITY, which has been noticed in a preceding Section. This property is interesting in all its relations, whether considered as forming a link between the two animated kingdoms, or as explanatory of all the *apparent actions* of the plant. By irritability, we mean that power in living bodies which, when acted upon by certain other powers, will induce an action of those parts in which it is inherent, and in this sense we must be understood whenever we make use of this term in the course of the present article. Leaves, particularly those that are compound, exhibit this phenomenon in a very singular degree; sometimes in the regular course of nature, and sometimes when placed in novel situations for the purposes of experiment. Each plant that displays a marked *irritability*, appears more especially affected by particular stimuli; so that some which exhibit the most singular degree of this quality, are perfectly unaffected by any stimulus, except that which seems to have been appropriated by nature to attain the especial object:—a proof to our minds, that we have only a faint glimpse of the purposes of the Great Author of Nature, or even of those general laws by which He regulates the operation of animated beings. It is rendered tolerably certain, by the experiments of Calandrini, that the display of irritability in the natural course of vegetation is owing, if not in all, at least in many cases, to the leaf itself, and not to the foot-stalk. This gentleman suspended vine leaves by a thread, after having previously separated them from the vine itself, and he found that they turned round to the light as they would have done had they not been separated from the stem. Leaves will become accustomed to particular stimuli, and will cease to be affected by them. M. Gerardin relates, that the celebrated Desfontaines conveyed in a carriage a plant of the *Mimosa sensitiva*, which is so remarkable for this property, as to derive its specific name from it, to a considerable distance in a coach, and that the first effect of the violent motion of the carriage was to induce the closing of the leaves, but after some time, no collapse of the leaves took place, although the motion continued with equal violence.

Singular exception.

Gerardin records a most singular fact relative to the *Mimosa sensitiva*, which he considers inexplicable. "I have seen," says he, "in one of my public exercises, in the central school of Vosges, and many were present besides myself, a young lady, who did not know this plant, on whom several of those pleasantries, so agreeable in society, were passed, that was urged to place her hand on it; after some hesitation, but being assured that no evil would result from the experiment, she passed her hand with some force over the plant which I had presented to her, without the least effect being produced on a single leaflet. Extremely surprised at this circumstance which I had then witnessed for the first time, I requested another lady to make a similar attempt, and immediately all the leaflets contracted." The experiment was repeated by the first lady with the same result as in the former trial. Probably this fact might be resolved, or at least supposed to be resolved, by its being referred to a difference in the electrical states of the two individuals who made the experiments; but as the solution would be as inexplicable as the fact itself, we have no hesitation in rejecting it, and avowing our entire ignorance of the cause which produces so extraordinary an effect.

Causes affecting irritability.

The causes inducing the contractions of different plants, and of the same plant, are very numerous. A touch of the hand, a scratch, heat, cold, strong smells, and many other stimuli produce this effect. By these means many experiments have been made on plants possessing irritability in perfection, and for that purpose the *Mimosa sensitiva* has been generally selected. Some stimuli seem, as we have hinted before, destined to produce certain determinate effects in certain plants, and are therefore applied by natural means; others again appear to have merely an accidental influence. Thus, the *Porliera hygrometrica*, a South American shrub, contracts its feathery leaves on the approach of wet weather, which it indicates with unerring certainty. The leaves of the *Onoclea sensibilis*, a species of North American *Filix*, when unfolding themselves, shrink on the least touch. The *Mimosa sensitiva*, so frequently mentioned, is affected by almost every means that can be applied. On the other hand, the *Dionæa muscipula* does not close its singularly constructed leaves until some animal has entered into its bosom, nor does it open until all motion on the part of the confined insect has ceased. Analogous facts have been observed connected with the genus *Drosera*, which is found in considerable quantity in this island.

The most remarkable, however, of all those plants, which appear not to be affected by any specific agent for some definite event, is the *Hedysarum gyrans*, a native of Bengal, which is cultivated in our hot-houses. It has trifoliate leaves, the central one of which is larger than the two others; they are all attached by articulations to a common foot-stalk. The central leaflet remains immoveable in a horizontal position during the day, and close to the foot-stalk during the night; the two smaller ones unceasingly describe an arc of a circle, the ascending of more rapid than the descending motion. If the regular motion be interrupted, as soon as it recommences, it goes on with increased vigour, and at length gradually subsides into its more natural movements. Many other examples of the same kind might be adduced, if our limits permitted us to enlarge on it.

Turning round of leaves to light.

Light has a very powerful influence on vegetation, the chief part of which will be better discussed in treating of it as a chemical agent. We may here remark, that it also produces a very striking effect on the irritability of leaves; plants being uniformly observed to present their leaves to the side on which the largest quantity of light is to be found. This fact is daily exemplified in hot-houses and on walls. The experiment can be easily made with a common geranium, or any of those plants that are usually placed in windows; by reversing their usual position, in a short time the leaves will be found to have turned completely round to the window.

Some ingenious philosophers attempt to explain the cause of this turning round of the leaves of plants when placed in unnatural situations; and, in addition to the influence of light, the agency of heat and moisture have been called in, and very probably, in some cases, they may act conjointly, though it is highly improbable that this happens in every instance. Bonnet supposed that the two last mentioned causes were the sole agents, and attempted to produce their effects by artificial means; and he is said to have succeeded in exciting motion in leaves by alternately presenting a bar of red hot iron to the superior surface, and a moistened sponge to the under side. Whence he concluded that the former became hardened by heat like parchment, and that the latter contracted with moisture. To give still greater weight to this hypothesis, he constructed an artificial leaf of parchment, of linen, and of brass wire, which, on being exposed to heat and moisure, displayed the same phenomena with the leaves of the *Acacia*. This is all very pretty hypothesis, but there is little confidence to be placed in it. It may be considered a philosopher's waking dream.

The time necessary to restore any plant on which any experiment has been made by touching, or any other means, varies in proportion to its vigour, and probably according to many other circumstances which are yet unknown to us.

Sleep.

Many plants close their leaves at a certain period of the day, and open them at another regular period: this may be seen in any garden at night; but it is particularly remarkable in the *Mimosa sensitiva*, the tamarind tree, and many others, but more especially those of pinnated leguminous plants. This periodical folding of the leaves has been called by Linnæus the sleep of plants, and the term is now generally used, in spite of the objections that may be urged against it. If we examine it accurately, there will be found little or no reason for rejecting it on account of the implied analogy; for it is not at all improbable that this folding of the leaves may, as Dr Smith expresses it, " be useful to the vegetable constitution, as real sleep is to the animal." This particular state of the leaves also protects the flowers from the dew. The phenomena of sleep were first noticed by Garcias, in the tamarind tree, in his voyage to the Indies; but the determination of the general fact was reserved for the illustrious father of scientific botany. The discovery was accidental, though a less curious mind than that of Linnæus would have overlooked the circumstance which led to it. Having reared a few plants of the Lotus, the seeds of which he had received from Sauvages, he remarked in the morning a pair of very thriving flowers, which disappeared at night. They, however, reappeared the following day, which excited Linnæus' attention, and he commenced his nightly examinations, by which he ascertained many of the most valuable facts that we now possess. The sleep of plants displays itself differently in different plants, that is to say, according to the arrangement of the leaves; so that in some they are applied to each other, in others to the stem, and so on, according to the peculiarities of the respective plants. Mirbel has been at the pains of classifying the modes of the sleep of plants, and he has certainly succeeded in giving a very important aspect to the enunciation of a simple fact.

ypotheses.

Such is a rapid sketch of the principal points known with respect to this phenomenon: little is to be learned from books respecting it, and much from nature. It is therefore not a little astonishing, that no philosopher, possessing opportunities and leisure, should have prosecuted the inquiry still farther than it has hitherto been. Notwithstanding the want of facts, solutions of the difficulties have abounded. Bonnet's hypothesis has been extended to explain it; and many other suppositions, equally unsatisfactory, have been advanced. Linnæus thought that it was induced by the absence of light. Hill pushed this opinion still further, and endeavoured to establish it by some plausible experiments. Decandolle has still more recently made some experiments on the *Mimosa pudica*, which render the opinion probable: He lighted up a dark cave with lamps, in which he had placed the plant at midnight; the leaves expanded, and in the following day they closed, on extinguishing the light. He did not succeed in his attempts to induce the same results in other plants of an equally irritable habit. This folding up of the leaves, or sleep, appears to be the result of certain actions of other causes on the irritability of the plant, and among these causes light appears to maintain a very high rank. The various living phenomena of every vegetable give force to these suppositions; but the mode of action is beyond our reach: we must be satisfied with learning the general laws by which nature conducts her operations.

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aves.

As the fall of the leaf is intimately connected with the state of the irritability of the plant, we shall detail the leading facts that have been ascertained respecting it in this place. It is familiar to all, that, about the middle of autumn, the leaves of all annual and of many perennial plants, gradually lose their vigour, change their colour, and having their vital powers completely exhausted, at length are separated from the parent branch. The singular variety of colour exhibited in a grove about the end of autumn, constitutes one of the splendid objects of an autumnal landscape. Many trees do not shed their leaves at the usual season: among these is the oak, in which this event does not take place until the spring; others, again, which are called evergreens, preserve their foliage throughout the whole year; a fact which Mirbel has endeavoured to explain, by first supposing that the fall of the leaf, under ordinary circumstances, depends on the retention of carbonic acid and water; he then supposes that the leaves of most evergreens contain resin, and that this resin having a peculiar affinity for the constituents of water and carbonic acid, absorbs them, and thus prevents their evil effects.

In general, the trees that push forth their leaves very early, lose them proportionally soon. There are, however, exceptions to this rule, as in the case of the *Elder*, though one of the earliest in producing, is one of the latest in losing them.

Explanation.

This phenomenon is supposed by Dr Smith to be a mere sloughing of diseased or worn-out parts:—an hypothesis so simple, and containing so nearly the simple expression of the fact, that few will contend against it. Mirbel has given a more laboured explanation, which appears to us to blend, without sufficiently marking the boundaries, facts with opinions,—an error that cannot be too sedulously avoided in every species of physiological research. According to this physiologist, there is a very free communication between the vessels of the leaf and those of the *liber*, so that fluids pass from each of these into the others without difficulty, and the foot-stalk is very firmly attached to the bark; but a bud is formed at the base of the foot-stalk, the *liber* becomes denser, the foot-stalk is protruded from its situation by the growing bud, the vessels become hard, the leaf ceases to receive fluids, and to expire. It then falls off, and undergoes decomposition.

Analogy between leaves and roots.

A strong analogy has been supposed to exist between the leaves of trees and their roots, because both of them take up fluids, and give out certain other fluids. Some have fancied the analogy to be so complete, as to authorise leaves being called *aërial* roots; an idea too whimsical to be entertained for a moment.

Absorption.

It is a certain fact, that the leaves of plants will both receive and give out aqueous fluid. The experiments of Bonnet are among the most satisfactory on this subject. By a very complete series of experiments, he determined the relative vigour with which this function is carried by the two broad surfaces of each leaf, and also the relative vigour with which it is carried on in different kinds of leaves; and it is curious to examine the results with which he has presented the world. His experiments were made on the leaves of fourteen herbaceous plants, and on those of sixteen trees, which were laid upon the surface of water. Six of the former, *Arum maculatum*, *Phaseolus vulgaris*, the sun-flower, spinach, and the small mallow, (probably *Malva rotundifolia*) lived equally well when either surface was applied to the water. Six others, plantain, white mullein, the great mallow, (probably *M. sylvestris*), the nettle, cockscomb, and purple-leaved amaranth, lived longest with their upper surface to the water. The proportion of the time which each of these leaves lived with the different surfaces exposed, varied much in the different species. The Marvel of Peru, and Balm, were the two remaining herbaceous plants on which Bonnet made his experiments, and they throve with their upper surfaces on the water. Of the leaves of the trees, those of the Lilac and Aspen lived equally well in all situations; all the others, but most remarkably those of the white mulberry tree, succeeded decidedly best with their under surfaces laid on the water. The vine, the poplar, and the walnut, died when laid on their upper surfaces in water, as soon as when altogether deprived of that fluid. It is very evident from the above facts, that leaves are furnished with organs that absorb fluids necessary for their support; and we learn from them of how much importance it is to water recently moved plants, cuttings, grafts, and buds, in order to support life.

Perspiration.

Leaves not only absorb, but also transpire fluids to a considerable extent. This function has been called the perspiration of leaves, and has been considered similar to that of the animal economy: the effects in both being evident to our senses. Hales and Musschenbroeck gave the first satisfactory information on this subject. The humidity that appears on leaves, until the time of Musschenbroeck, was considered a mere condensed earthy exhalation. This philosopher ascertained its real nature. Hales extended these inquiries, and determined the precise quantity of water given out by several plants. His experiments were made on the vine, the annual sun-flower, the cabbage, and some other plants, the details of which are given in almost every introductory work on botany, to which we must refer.

Causes influencing it.

The state of the atmosphere influences very much the rapidity of perspiration, as is well known to practical botanists and gardeners. Succulent plants perspire sparingly; and evergreens, though not generally succulent, yield very little moisture. The thin leaves yield most perspired matter; the example of the most excessive perspiration being in a tree whose leaves are remarkably thin. It is the cornelian cherry, (*Cornus mascula*,) which Duhamel states to throw out, in the course of twenty-four hours, a quantity of fluid equal to twice its own weight; a quantity almost inconceivable.

Of aquatic plants.

Aquatic and bog plants seem to perspire much more copiously than any others. This corresponds with their absorbing powers, and is probably owing to their extreme vascularity. The genus *Nymphæa*, and the genus *Potamogeton*, are examples which are known to every one. The genus *Sarracenia*, and the *Nepenthes distillatoria*, are also well known to botanists, and have long attracted notice from the singularity of their economy, which has puzzled all that have pretended to understand it. The leaves of the former of these genera is so constructed, as effectually to exclude the rain from the hollow contained by them, and yet that cavity always contains a quantity of water, which the plant must certainly secrete. Dr Smith conjectures, that it serves as a reservoir for the food of an insect of the *Sphex* or *Ichneumon* kind; and that the gas evolved from the dead flies there deposited may be beneficial to the plant. This may be, but we have no proof of its actually being the case. The leaves of the *Nepenthes distillatoria* form a close shut tube, containing an ounce or two of water, which is secreted through the foot-stalk of the leaf. In this cavity a small *squilla* or shrimp, first described by Rumphius, lives and thrives, while every other insect that enters it dies. The same explanation given of the *Sarracenia* has been also applied to this plant. And it may be correct to a certain extent, that is, in so far as it considers the small insects as the food of the shrimp.

Nature of the perspired fluid.

The fluid perspired is said to resemble sap in all its sensible properties, except in some exceptions. It is probable, however, that there are some important differences, although they cannot be detected by our present chemical tests. This pure fluid is not the sole matter which the leaves give out.

Other ex dations,

A saccharine matter has been observed on the leaves of orange trees; a glutinous matter on those of the lime tree; and a resinous matter on those of the poplar, and of the *Cistus creticus*. Manna has been scraped off the leaves of the *Fraxinus Ornus*; and a highly inflammable gas is secreted by the *Dictamnus albus*. Occasionally a kind of honey dew is excreted by the leaves when the plant is in an unhealthy state. Wax has been gathered from the leaves of Rosemary.

Changes the air,

There is another class of operations performed by the leaf, which merits and has obtained much careful examination, and which has opened a field, as might have been anticipated, for most brilliant speculations. The phenomena to which we allude, are those chemical effects which are induced by leaves on the surrounding atmosphere; and the influence of light and heat in promoting those effects, as well as some others which we shall come afterwards to notice. The particular organs of the plant concerned in these operations have not hitherto been completely discovered, although much important knowledge has been attained with regard to their effects within a very few years. It is probable, however, that the powers of life have full scope in these, and in all the other vegetable functions performed during its life. Whatever difference of opinion exists with regard to the influence of light and heat on the leaf, there can be no doubt that air is indispensibly necessary for its existence. This fact, as well as the relative influence of the leaf on the air, has been demonstrated by Hales, Duhamel, Knight, and others, in the most ample and satisfactory manner. It having been once determined that air is required for vegetation, the next objects of inquiry are, what portion of the atmospherical air is employed; whether a part or the whole of it is consumed; and what are the agents engaged in conducting the process. Philosophers have eagerly sought for solutions of these inquiries; and we find the illustrious names of Scheele, Priestley, Ingenhousz, Saussure *junior*, Senebier, Davy, Perceval, Henry, and Ellis, among those that distinguished themselves by prosecuting this department of vegetable physiology with unwearied zeal.

Opinions Priestley.

Dr Priestley made numerous experiments on the action of leaves on the atmosphere; and he drew the conclusion which has been most generally adopted by succeeding chemists, that they possess the power of absorbing carbonic acid, and of emitting oxygen gas. This doctrine was founded on the vigour with which vegetation will go on under certain circumstances in carbonic acid gas, which disappears, and oxygen is developed. Ingenhousz, it is generally thought, has established, that the oxygen gas is emitted by the leaves; and it was inferred, that the decomposition of the carbonic acid gas, in the parenchymatous substance of the leaf, furnished the emitted gas, the whole of which, however, was not disengaged, but a part retained. It is also stated, that a small portion of azote is emitted. It is also remarked, that this absorption, decomposition, and emission, take place only in the light. And it is also the prevalent opinion, that the leaves of plants during the day give out moisture, absorb carbonic acid gas, and emit oxygen gas and azote; and that during the night they absorb moisture, give out carbonic acid gas, and absorb oxygen gas.

f Ellis.

From a view of the above statement, Dr Priestley deduced the opinion of the purification of the atmosphere by means of plants; an opinion which at first seemed so consonant with the order and simplicity of nature, that it was generally adopted, without a sufficient examination of the facts, until Mr Ellis's Inquiries into Vegetation and Respiration were laid before the public. This gentleman has the rare merit of having calmly and deliberately ascertained the value of every fact, or supposed fact, by his own experience, and of having detected and exposed the errors of his predecessors, with the candour, liberality, and acuteness which characterise the genuine student of nature. After a most laborious and careful set of experiments on myrtles, beans, willows, and other plants, Mr Ellis arrived at the general conclusion, "that the oxygen gas of the atmosphere is converted into carbonic acid gas by the process of vegetation; and that the bulk of the latter gas nearly or exactly corresponds with that of the former; and consequently, they" (the experiments) "demonstrate that the air is deteriorated by the growth of plants, in the same manner as by the germination of seeds, and that no part of the oxygenous portion of the atmosphere combines with the substance of the plant." He also derives a very strong argument from the anatomical structure of the leaf: there is no proof of the existence of vessels peculiarly fitted for absorbing carbonic acid gas; nor is it probable, that those calculated for the reception and elaboration of the circulating fluids can by any means receive an extraneous fluid; nor can it be received by the exhaling pores, as that would involve the impossibility of one organ performing two distinct functions at the same time. The common absorbents cannot be supposed to receive it, as they, too, are otherwise employed. If, then, this absorption is not carried on by any living action, can it be the result of chemical affinity? This also is improbable; for if it be the consequence of chemical agency, all the laws of chemistry must be violated, as the structure of the leaf presents insurmountable obstacles to their action. The natural inference from which is, that the carbonic acid gas is formed exteriorly to the surface of the leaf, and out of the very oxygen of the surrounding atmosphere. Such are a few of the positive arguments which Mr Ellis urges with much force in support of his opinion; besides these, he analyses the experiments and opinions of Priestley, Scheele, Ingenhousz, Woodhouse, Senebier, and Saussure; and he contends that the results obtained by them concur in establishing the same position that he supports; and after having fully and satisfactorily shewn that the carbonic acid gas is formed during the process of vegetation in the shade, he proceeds to point out, as a principal source of error, the neglect of the difference of the operations carried on in the sunshine and in the shade; and he states the distinction so concisely and clearly, that we shall use his own words: "From the facts which have now been stated, we collect, that plants, which vegetate in sunshine, require always the presence of oxygen gas; and that, by the act of vegetation, they constantly change this oxygen into carbonic acid. We farther learn, that carbonic acid enters plants, both with the fluids which they absorb, and also, under certain circumstances, in an elastic form; that this acid gas is conveyed to the leaves, and is there decomposed by the joint operation of the plant and of solar light; and that it is from this source alone, that the oxygen gas afforded by plants is derived. It likewise appears, that this operation of affording oxygen is not properly a vegetative function, but only a subordinate office, accomplished by the direct agency of the sun; that it is carried on in the cellular or parenchymatous structure, and not in the vascular system of the leaf; and that it may, and does exist with that function by which oxygen is consumed, and which is essential to the vegetation of the plant. Hence it is, that, when plants are made to grow in closed vessels exposed to the sun, the oxygen gas which is consumed by the function of vegetation, is again restored by the decomposition of the acid that is formed, and no change, therefore, appears to be effected in the composition of the air. But in situations, where the direct agency of light is excluded, no decomposition of carbonic acid is perceptible, and the air, therefore, soon becomes unfit to sustain vegetation. In its general nature and effects, therefore, the function of vegetation is precisely the same in sunshine and in the shade; for oxygen gas is alike necessary in both situations, and is in a similar manner converted into carbonic acid. Under direct exposure to the solar rays, however, this acid gas is again decomposed, and its oxygen is restored to the atmosphere; while, in the shade, no such operation takes place, and the air, therefore, remains permanently depraved.

"But farther, it also appears, that the production of oxygen is entirely confined to the leaves and other green parts of plants; and that the flowers, the fruits, the stems and roots of vegetables, both in sunshine and in the shade, convert always the oxygen gas of the air into carbonic acid."

Utility of carbonic acid.

It has been a favourite opinion with many, and particularly with M. Theodore De Saussure, that carbonic acid gas is necessary for healthy vegetation; and many experiments have been made with a view to determine it. Mr Ellis has analysed the reasonings deduced from those instituted by M. De Saussure with great address, and has given a most ample confutation of the inferences made by that gentleman from his own premises; and further, he has detailed some experiments made by himself, which corroborate his opinions. We regret that we cannot take even a rapid survey of the ingenious reasonings employed by Mr Ellis: the general conclusion however is, that vegetation owes its perfection to oxygen gas, and not to carbonic acid gas; that, on the contrary, this acid is injurious to vegetable life, unless decomposed "by the agency of solar light." In that case, indeed, the oxygen produced from the decomposed carbonic acid is beneficial, so that vegetation will go on in a pure atmosphere, containing not more than $\frac{1}{1000}$ part of carbonic acid.

By affording oxygen.

Decomposition of water.

Leaves have been supposed to possess the property of decomposing water as well as carbonic acid, when exposed to the light of the sun; and Berthollet has inferred, that a portion of the apparent oxygen is derived from the water, while the hydrogen, with the carbon (of the decomposed carbonic acid), forms the inflammable parts of the plant. This hypothesis is ingenious, and has received some support from Saussure's experiments. But many objections may be urged against it; so that, without farther proof of its correctness than we at present have, we must unite with Mr Ellis in rejecting it.

Purification of the atmosphere by vegetables.

We have in a former part hinted at the supposed purification of the atmosphere by means of plants. The beauty of the idea has led many to adopt it, without investigating its truth; and Mr Ellis has here, too, thrown down the gauntlet;—he asserts, that the means supposed to effect such great ends are wholly inadequate, and that although there are certainly some means by which the air is freed of the noxious ingredients derived from vegetation, germination, and respiration, yet the present state of chemical science does not permit us to say what they are. Mr Ellis meets, with energy, the cavils of those who may urge the doctrine of this purifying process as necessary in the economy of nature, and as illustrative of the wisdom of Providence. "It behoves us," says he, "to employ no ordinary portion of delicacy and caution in pronouncing on the general plans and purposes of Providence, from the little and partial views of nature, which at present we are permitted to take, lest, in the effervescence of our zeal, we degrade the wisdom we pretend to exalt, and pervert the designs of the goodness we profess to revere."

Colouration of plants.

The colouration of plants presents one of the most interesting, and, at the same time, obscure branches of physiological research. Humboldt attributes the green colours of leaves to the agency of hydrogen, because he had observed some plants retain their green colour in mines. Saussure, however, could not increase the green of plants by means of hydrogen. Humboldt also ascribed the white colour to oxygen, which seems to be erroneous, as this oxygen existed in a state of combination previous to its being made apparent, and cannot therefore be proved to produce this white colour. Senebier's phlogistic hypothesis is unworthy of detailed notice. His subsequent opinions respecting the operation of carbon, do not seem to be better founded. This philosopher, as well as Berthollet, determined many important facts. There is a very evident connexion between the decomposition of carbonic acid gas and the green colour of leaves, as is shewn by the following results. Green leaves only yield oxygen gas; the parenchymatous substance of the leaf is the seat of decomposition of the gas, and of the green colour; the colouration will take place in leaves separated from the stem, so that there can be no living action in them; consequently the colouration is independent of the life of the plant.

It appears from the various experiments of Berthollet, Senebier, and others, that solutions of the colourable parts of leaves are rendered red or green according to the predominance of acid or alkaline matter; but similar effects will be also induced on entire leaves. Etiolated leaves, and those reddened by age, pass into green in alkaline fluids; those that are yellow from decomposition become brown in the same circumstances. Ellis observed, that if the green colour had been previously affected by the action of water, that alkalies did not restore it. On these facts this physiologist ventures to presume, "that these same agents (acids and alkalies) if present, will exert a similar action on leaves during their growth."

He first establishes the existence of a large quantity of alkaline matter in the leaves, and then shews that the separation of the carbonic acid, and its subsequent decomposition, render the alkali predominant, and consequently better fitted to exert its specific influence "on the colourable juices of the plant," which produces the green colour of the leaf. So that, according to Mr Ellis's views, the decomposition of the carbonic acid answers two purposes, the production of oxygen gas and the formation of the green colour.

If the green colour depend on the predominancy of alkali, it may be reasonably supposed that the white colour depends on a deficiency of it. Senebier's experiments support this supposition, and his results have been confirmed by Davy and others. This whiteness of colour will continue so long as the acid abounds; and accordingly we find, that plants growing in the shade are *etiolated*, or devoid of the green hue, until they are placed in the full sunshine. The various shades of colour exhibited by different leaves immediately before their fall are affected by similar causes, and consequently are explicable on the same principles. In the same way, too, the variegation of different leaves may be resolved, or at least the agents that produced them may be pointed out. The mode in which these effects are induced, Mr Ellis does not attempt to detail, being satisfied with the general fact. It would open a field of interesting inquiry, to examine, with care, the gradual changes from green to white, with all the intermediate and collateral varieties of colour; and, it is probable, that in the course of such researches, many valuable facts would develope themselves, and thus tend more clearly to elucidate this branch of vegetable physiology.

Chem agenc light.

The necessary agency of light in promoting the colouration of plants, has been made sufficiently evident in the preceding detail; but it yet remains to be determined in what manner it exerts this agency; a question of much delicacy and difficulty. Adopting Mr Davy's notions respecting the nature of electrical agency, Mr Ellis has instituted an analogy between the chemical agencies of this fluid and of the solar ray, supposing that the action of calorific rays corresponds with that of the positive electricity, and that that of the deoxydizing rays correspond with that of the negative electricity; the former promoting combination, and the latter decomposition. After a full examination of the facts and opinions that are maintained on the subject of colouration, the following are his general conclusions. "We may observe, in the first place, that, by the chemical agency of this subtile matter, the saline compounds of plants are decomposed, and the acid and alkaline matter, thus developed, combine with the colourable juices of the vegetable. In consequence of this com-the same spadix. M. Hubert also determined, that the exterior surface of the spadices produced the same remarkable effect, as well as that the contact of the atmosphere is essential to its production. Mr Hunter, who ranks so deservedly high as a physiologist, made many experiments to determine the heat of vegetables, but they do not appear quite satisfactory. Schoepf, too, made several experiments with similar views, but without obtaining any thing decisive. The recent observations of M. M. Lamarck and Senebier on the *Arum maculatum*, shew satisfactorily, that much heat is evolved by that plant at the period of fecundation.

Power of resisting heat.

Plants also possess a power of resisting high degrees of heat. "Sonnerat," to repeat the words of Willdenow, "discovered in the island of Luconia a rivulet, the water of which is so hot, that a thermometer immersed in it rose to 174° Fahrenheit. Swallows, when flying seven feet over it, dropped down motionless. Nothwithstanding this heat, he observed on its banks two species of *Aspalathus*, and the *Vitex agnus castus*, which, with their roots, swept the water. In the Island of Tanna, Messrs Forsters found the ground near a volcano as hot as 210° Fahrenheit, and at the same time covered with flowers."

Dr Smith ascribes the pernicious effects of cold, on opening buds, to "the increased susceptibility of the vital principle, after it has been revived by the warmth of spring."

Production of heat.

The manner in which this heat is produced, is a curious subject of speculation, and little has yet been done in tracing the general facts on which alone a theory can be safely founded. It has been shewn, in the instance of the *Arum cordifolium*, that carbonic acid is formed, and that the heat-forming power is confined to the exterior surfaces of the spadices. From these, and other facts, Mr Ellis deduces the following conclusions: "That the oxygen gas of the air is converted into carbonic acid, by carbon exhaled by the living plant, whereby the greater part of the specific caloric of that gas is disengaged. It is to this change of composition in the air, and consequent extrication of its heat, that the increased temperature observed in plants, during their vegetation, is to be ascribed." These conclusions are unquestionable, when applied to certain stages of vegetation. Some doubt may be entertained, from the contradictory results to which we have already alluded, of the permanent production of heat in vegetables; but, from the facts previously stated, we are inclined to believe, that not only a certain portion of heat is necessary for the support of vegetable life, but that an uniformity of temperature is maintained by means of natural processes going on in the plant itself. We have here given the particular facts relative to this subject, because the discussion of the changes effected on the air by vegetables, is more intimately connected with the economy of leaves than that of any other part; it must, however, be steadily kept in mind, that similar actions go on in all parts, and, consequently, that the same effects, tending to the same end, are also carried on with an energy proportioned to the importance of the efficient organ.

SECT. VI. *Fructification.*

The mode of inflorescence is extremely various in different plants, and sometimes forms beautiful distinctive characters. The cause of these variations is as unknown as that of the diversities of form among animals. The fructification of plants next comes under review. The definitions of the separate parts have been already given, (Art. 59—68 inclusive, Sect. ii. Part I.) Linnæus has defined the whole in the following terms: "Fructificatio vegetabilium pars temporaria, generatione dicata, antiquum terminans, novum incipiens." The parts that compose the fructification are the flowers and the fruit; each of which contains distinct and separate organs, which we shall first describe, and then give a short sketch of the peculiar functions of each. The flower consists of the calyx, the corolla, the stamen or stamens, the pistil or pistils; and each of these contains other parts, that receive appropriate names.

The calyx or flower-cup is always present in all perfect flowers, and is correctly the external covering of the flower, (Plate LXIX. Figs. 20, 22, 27, 30, 33.) There are various kinds of flower-cups, (Art. 61. Sect. ii. Part. I.) each of which, in turn, exhibits much variety of character. Linnæus adopted the opinion, that this organ proceeded from the bark. The celebrated Jussieu has embraced the same opinion; but, though ingenious, it is devoid of proof. It appears probable, that its chief use is to protect the flower, where it exists; and it may also, as Dr Smith supposes, "often contribute to the growth and strength of the stalk, which supports it as the leaves do that portion of branch below them." The calyx, when green, acts on the air in the same manner as leaves do. It also absorbs and transpires in a similar manner.

The corolla lies within the calyx, enveloping the generative organs of the plant, and constituting the chief beauty of the flower. Its colour is various, even in plants of the same species: The delicate blue of the common speedwell, the rich glow of the rose, and blushing tinge of the pink, are familiar to every one. The corolla is composed of two parts; the petal or petals, and the nectary, (Art. 62, 63, 64. Sect. ii. Part. I.) The former of these exhibits a rich variety of colours, and may be either simple or monopetalous, or compound or polypetalous. Each of these varieties again have other parts, which are sufficiently defined in the terminology. The forms of the corolla are so diversified, that some botanists have founded systems of classification on them, (See *History of* BOTANY.) The internal structure of the corolla is said to be similar to that of organs, differing chiefly in the contained colouring matter, which, according to Mr Ellis, is influenced, and produced by the same agents that affect the leaf. Little is known of the uses of this beautiful organ. It probably affords protection to the more delicate parts of the flower, and may, as Linnæus conjectured, serve to waft the flower up and down in the air, to promote the reciprocal agency of the stamens and pistils. Sprengel has shewn, that the corollas of and the blossoms do not appear till autumn; "but a due examination will readily ascertain, that the seed-bud formed in autumn is the very same which comes to maturity in the following spring."—"A pine apple," adds this agreeable writer, "was once very unexpectedly cited to me as an instance of fruit being formed before the flower, because the green fruit, in that instance as in many others, is almost fully grown before the flowers expand. The *seeds, however, the essence of the fruit, are only in embryo at this period;* just as in the germen of an apple blossom." All flowers are furnished with both stamens and pistils, in the same individual, or in two distinct individuals of the same species. This fact has been ascertained in the most minute examples, even in mosses, which were long supposed anomalous. Ferns form the only apparent exception; and it is highly probable, from general analogy, that these parts, though still concealed, have existence in that order. Although plants have sometimes abortive stamens, and barren pistils, yet the whole will not be found to be unproductive; on the contrary, there will always be a certain number to accomplish the propagation of the species. Nature, too, admirably provides for the commixture of the pollen with the fluid covering the stigma, by a synchronous operation of the parts themselves, or by other agents to be hereafter noticed. The most decisive proof of the necessary agency of the stamen on the pistil for the production of the perfect fruit, is afforded by the very well known experiment, "made in 1749 upon a palm tree at Berlin, which, for want of pollen, had never brought any fruit to perfection. A branch of barren flowers was sent by the post from Leipsic, twenty German miles distant, and suspended over the pistils. Consequently abundance of fruit was ripened, and many young plants raised from the seeds." Linnæus further encountered all the cavils and objections of his opponents, by accurate and satisfactory experiments: But, as is the case too commonly in philosophical warfare, he refuted, but could not always silence clamour.

It was urged by Pontedera and Tournefort, that the pollen was a mere excrement; but various arguments were adduced against this opinion as well as the other, which was also entertained by these philosophers, of the circulation from the stamens of a certain secreted something to the seeds; but Linnæus decided both points by experiment. "He removed the anthers from a flower of *Glaucium phœnicium*, stripping off the rest of that day's blossoms. Another morning he repeated the same practice, only sprinkling the stigma of that blossom, which he had last deprived of its own stamens, with the pollen from another. The flower first mutilated produced no fruit, but the second afforded very perfect seed. My design," says Linnæus, "was to prevent any one in future from believing, that the removal of the anthers from a flower was in itself capable of rendering the germen abortive."

It is very remarkable, that the stamens are always shorter than the pistils in drooping flowers, and longer in erect ones. Evidently destined to favour the influence of the pollen.

Many other curious and beautiful means are employed, to promote the due application of the pollen to the stigma. In some plants, such as the *Parnassia*, the stamens successively lean over the stigma, and deposit the pollen. Others have a spontaneous motion. Others are connected by a membrane, which contracts or dilates according to the state of the atmosphere. Other stamens possess a considerable elasticity, by which means the pollen is projected upon the stigma. In other flowers, the germen has a considerable curvature endowed with an elasticity, that brings it into contact with the stamens. The stamens of the Barberry possess a high degree of irritability, which has been very particularly described by Dr Smith and Mrs Ibbetson, and, by means of that property, the ends of vegetation are attained.

Mod prop tion.

"In this" flower, says Dr Smith, "the six stamens, spreading moderately, are sheltered under the concave lips of the petals, till some extraneous body, as the feet or trunk of an insect, in search of honey, touches the inner part of each filament near the bottom. The irritability of that part is such, that the filament immediately contracts there, and, consequently, strikes its anther, full of pollen, against the stigma. Any other part of the filament may be touched without this effect, provided no concussion be given to the whole. After a while the filament retires gradually, and may again be stimulated; and when each petal, with its annexed filament, is fallen to the ground, the latter, on being touched, shews as much sensibility as ever."

The economy of aquatic plants is beautifully adapted to the same purpose. Many of them lie beneath the surface of the water until the flowering season, when they shoot forth their flowering spikes, so that the flowers are completely exposed above the water, and as soon as the seed is formed, it sinks to the bottom. The rising and falling, opening and closing of the nymphæa, is known to all that have been in the habits of observing that plant; and the *Valisneria spiralis* (Plate LXXIV.) exhibits some beautiful phenomena of the same kind.

PLAT LXX

This plant grows in ditches in Italy, and its fertile flowers grow on spiral stalks, which, by uncoiling, allow the flowers to rise to the surface, where they expand. Barren flowers are, during this time, formed at the bottom, on a distinct root, and rise also to the surface in great abundance. By this means the pollen is scattered over the first flowers, which, after impregnation, sink, and the fruit reaches maturity at the bottom.

Insects are very frequently the agents of the fertilization of the stigma. Koelreuter and Sprengel have made many valuable observations on this fact. The latter of these gentlemen had both leisure and patience enough to examine the manner in which insects perform the office of impregnation. He found, that various species of bees, and many flying insects, are employed; and he further learnt, that some flowers have insects peculiar to themselves. The object of the animal is to obtain honey, and while in quest of it, his hairy body collects the pollen from the male flower, and communicates its influence to the female during some subsequent search. It is not a little singular, that those insects which are not confined to a particular species, fix upon *one* species during the course of each day. In such flowers as require their agency, hairs are usually placed in such a situation at the entrance of the flower, as not only to exclude wet, but also to compel all insects that enter it to pass over the stamens. The intervention of insects is singularly displayed in the *Aristolochia clematitis*, the flower of which always remains in an erect position, and the stamens are shorter than the pistil. The consequence is, that the pollen falls to the bottom of the corolla; and if insects be excluded by means of thin gauze, the flower does not yield fruit. Frequently too, as a particular insect, (*Tipula pennicornis*), which is sometimes wanting, performs this office, the same abortive effects occur. Many particulars are recorded of the means by which different insects accomplish these ends. The sketch which we have given, is sufficient to give an idea of their agency.

rotection f pollen.

To protect the pollen from moisture, which it has been hinted is peculiarly noxious, as it bursts the grains of pollen if applied previous to the maturity of the different parts of the flower, flowers fold their petals, or droop when moisture prevails. The drooping of the flower occurs in the *Galanthus*, *Leucojum*, *Fritillaria*, and others. This does not appear to be owing to the weight of moisture, as the fruit, though much heavier, remains erect. The closing of the *Anagallis* is so remarkable, as to have obtained for that flower the epithet of the poor man's weather glass. Linnæus remarked, that they lose this delicate sensibility after the anthers have done their duty.

ypotheses f propa- ation.

Such are the leading facts connected with the functions of the stamens and pistils. Many hypotheses have been formed to explain their reciprocal agencies, and the advocates of each has urged a host of arguments in support of his opinion—and it may fairly be said, that each has argued with equal truth. The doctrine of *Epigenesis*, or of the mixture of the fluids derived from the pollen and the stigma, seems the most probable, and that which has received the strongest support from experiment. Koelreuter, by fecundating the female flower of one species of *Nicotiana*, with the pollen of another species of the same genus, produced a hybrid plant, retaining some of the characters of each of its parents, but resembling neither of them exactly. This is a curious subject, and promises to reward very richly those who may feel disposed to prosecute such inquiries.

uit.

We now come to the productions of the combined agency of the stamens and pistils, which receives the general name of fruit. All the peculiarities have been detailed in the first Section of this Part, and it is impossible to add any thing beyond what is to be found in TERMINOLOGY, (Part I. Sect. ii. Art. 67.) The uses of the different kinds of seed vessels are obviously to protect the young seed until the period should arrive, when it is to enter upon a new class of functions. The colouration of fruit seems also to depend on the same causes that influence the colours of leaves and flowers, which have been already detailed as amply as our limits would permit.

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The fall of the fruit does not take place, when the plant is healthy, until it is fully ripe. At that period the designs of nature are fulfilled; and as it ceases to require nourishment, by a law of vegetation the vessels gradually lose their vigour, at last die, the stalks fade away, and the fruit falls, while the branch on which it flourished retains its vigour and energy unimpaired.

SECT. VII. *General Summary.*

General summary.

WE have now traced the plant through all its gradations, from its embryo state to that of its complete formation. We have seen it gradually ascending from the most imperfect rudiments, and ultimately attaining a magnitude unknown among other organised bodies. In its most perfect state, the tree consists of separate, solid parts, pervaded by regularly organised vessels. These vessels we have found are not distinct from each other, but form a continuous series of central and alburnous vessels, which terminate in the leaf, whence other vessels, that receive the name of cortical vessels, turn through the bark. Each of these parts and vessels of trees, we have learned, perform a series of determinate functions. It now remains for us to view them in the relations which they bear to each other. But before we can effect this in a satisfactory manner, it is necessary that we should ascertain, as far as possible, the nature of the matter which supplies the plant with nourishment; the nature of the fluids which exist in it; whether a circulation is carried on, and in what manner; and lastly, we shall learn the extent of our knowledge respecting the various changes effected by the operations that are known to go on. We shall then be enabled to take as complete a view of the vegetable economy as the present state of our knowledge will permit; and although such a survey will rather shew the imperfection, than any real progress of our investigations in vegetable physics, yet it may be useful, in so far as it may excite some doubts in the minds of those who now believe that little remains for the exercise of talent. Ingenious men have long employed themselves in endeavouring to discover the nature of the food by which plants are nourished, and it is singular to observe how very little they have done in their inquiries. And although the cause of their want of success appears very obvious, as it has escaped so many, it may not be irrelevant to make a few observations respecting it. Almost every philosopher that has engaged in physiological researches, has received some previous impressions in favour of a particular branch of science, and his particular views on that subject, have too generally determined his physiological speculations. Thus the mechanical philosopher fancies, that every function of organised beings is carried on by means of mechanical agents; while the chemist, on the other hand, considers such means inadmissible, and refers every phenomenon to the agents of his science—both of them forgetting, that there is a certain unknown something which we call life, that maintains a marked and important character in the living economy, and which must influence, at least the contrary cannot be proved, every operation that is performed either in the animal or the vegetable. A neglect of this principle has often led the most illustrious ornaments of our species to attempt what others more cautious, though possessing less real genius, have shunned.

Vegetable Physiology.

Food.

Nature.

The simple fact of the increase of vegetables, is a sufficient proof that some food is received into its system from the earliest period of its existence. Whatever this food may be, it seems, in the first instance, to be derived from the cotyledons of the seed, and afterwards from the surrounding soil. It is also probable, that carbon is the chief material; though the manner in which it is prepared and transmitted is not quite so obvious. Water, it is well known, is necessary for vegetation; and it has therefore been considered by some as the sole food of plants. Some experiments of Van Helmont seemed to support this opinion; but more recent observations have shewn their insufficiency. Other experiments by Duhamel and Tillet are equally inconclusive. Braconnot too, has lately endeavoured to establish the old opinion; but the sources of fallacy are so numerous, that little dependence is to be placed in his results. Plants have been supposed to derive nourishment from the atmosphere. This we deem highly improbable, unless water be considered as their sole food. Various facts tend to disprove this hypothesis.

Source.

The soil in which plants vegetate, is the source from which they have been supposed to derive food; and it has been found, that the proportion of earthy matter varies with the soil. It is also highly probable, that Schrœder's opinion, founded on numerous experiments, is correct—that plants possess the power of generating particular solid matters, such as the earths and carbon, within themselves. The matters contained in manures affect the plant very considerably; and it is very singular, that the saline matters most injurious to vegetation are taken up most abundantly, although it has been tolerably well ascertained, that the root does not absorb saline matters indiscriminately.

The vegetable black mould is particularly fertile, and when treated with an alkaline ley, exhibits phenomena exactly resembling those of pit coal. Animal manure probably furnishes the same materials as vegetable manure. In what manner does these substances afford food to the plant? This is a question of much difficulty, and cannot be answered in the present state of our chemical knowledge. It has, however, been rendered probable by Mr Ellis, that carbon is afforded by "spontaneous changes in the seed" to the young plant, and that the agents which produce these spontaneous changes are heat and moisture. This material is, in all likelihood, afforded by soils and manures, and even by substances that do not contain it in any sensible quantity. We have already endeavoured to shew, from Mr Ellis, that carbon is not derived from the atmosphere. From the facts which we possess, we feel disposed to suspect, that carbon and water constitute the food of plants: these, however, are elaborated in a manner much too nice for our senses. We do not pretend to state that the fact is proved.—Such is the uncertainty of all chemical speculations.

Sap.

Whatever may be the food of plants, and in whatever manner it may be digested, we are assured, that at certain periods of the year a fluid exists abundantly in the vessels, already described, and is evidently destined to perform offices of the utmost importance to the life of the plant. This fluid is named the sap, and is observed, in temperate climates, to abound in the spring and at the beginning of autumn. In warm countries it flows from palm trees at all times. The sap is a transparent, colourless, and inodorous fluid, almost devoid of taste. It exists in different states, at different seasons of the year, and different parts of the plant. Chemical analysis shews, that it is very various, according to the plant in which it is found. It has also been shewn, by the same means, that the age and exposure of the tree affect the composition of the sap. It is highly probable, from the single fact that a grafted branch bears its own peculiar fruit, that although the food is received by the root, it undergoes the great and essential change in some parts of the plant. The circulation of this sap, or its ascent to the leaves, and consequent descent towards the roots, have been satisfactorily proved by the experiments of Hales and Duhamel. Many hypotheses may be framed as to the mode in which this circulation is effected, but we shall forbear to enter into them, as the most perfect detail will add nothing to our actual knowledge. Mr Knight seems to have shewn pretty distinctly, that the sap ascends by means of the central and alburnous vessels, in the latter of which it is combined with a quantity of matter deposited in the alburnum for that purpose in the course of the preceding autumn. After reaching the leaf, where it undergoes some important changes, as is shewn by the phenomena which there take place, it is returned downwards by the cortical vessels. In the course of this ascent and descent, after forming all the new parts, the plant is employed in forming new matter, which Mr Knight has shewn is deposited in the alburnum, where it remains until the following spring, when it affords nourishment to the buds and young leaves. From this fluid (the sap) the peculiar juices of plants are also formed; probably by some living action in the vegetable, similar to those that produce the various secretions of the living animal. See CHEMISTRY.

Veget
Physio

Circul
tion.

Recapi
lation.

Thus we find, that the perfect plant is not only composed of solid parts, containing vessels which convey certain fluids, but that each of these parts perform determinate functions, which contribute to the well-being of the whole. We have seen, that the root absorbs nourishment; that the leaves, under certain circumstances, absorb moisture; that the fluid nourishment taken in by the roots, circulates through the stem, the leaves, and the bark; that the plant perspires an aqueous fluid; that it forms peculiar depositions; that carbonic acid is formed by the union of carbon evolved in a fluid with the oxygen of the atmosphere; that carbonic acid, taken into the system with the food, and by other means, is decomposed in the *parenchyma* of the leaf; that heat is disengaged by the formation; that the colouration is effected by the decomposition of the carbonic acid; and that the processes of assimilation are going on, as is evident to our senses, by the effects. The sum of all our real knowledge in this department of physics is now shewn to be extremely limited: Some of these causes of this imperfection have been already glanced at; and as they may be obviated, they furnish many reasons that should add fresh vigour to the efforts of those who have it in their power to nor perch is to be found in the lakes higher up. The boundary of the Spruce fir is 3200 feet below the line of perpetual snow, and the mean temperature is about 3° of Celsius's thermometer, (37½° of Fahrenheit.)

"2. Scotch firs (*Pinus sylvestris*) are still found, but not near so tall as in the lower country. Their stems here are low, and their branches widely extended. Here are seen the last of *Ledum palustre*, *Salix pentandra*, *Veronica serpyllifolia*, &c. The bogs have already a very sterile appearance. Near the utmost boundary of the Scotch fir grows *Phaca alpina*. Higher up are hardly any bears to be met with, and the berries of *Vaccinium myrtillus* (the Bilberry) do not ripen well. *Salmo lavaretus* (the Gwiniad), and *S. thymallus* (the Grayling), soon after disappear from the lakes. The upper limit of this zone, when the Scotch firs cease, is 2800 feet below the line of perpetual snow, and the mean temperature about 2.5° of Celsius (36½° of Fahrenheit.) A little below this point, or about 3000 feet before we come to perpetual snow, barley ceases to ripen; but small farms, the occupiers of which live by grazing and fishing, are met with as far as 400 feet higher, for instance Naimaka in Enontekis; and so far also potatoes and turnips grow large enough to be worth cultivating.

"3. Beyond this the dwarf and stunted forests consist only of Birch. Its short thick stem, and stiff, widely spreading, knotty branches, seem prepared to resist the strong winds from the Alps. Its lively light green hue is delightful to the eye, but evinces a weakness of vegetation. These birch forests soon become so low, that they may be entirely commanded from the smallest eminence. Their uppermost boundary, where the tallest of the trees are not equal to the height of a man, is 2000 feet below the line of perpetual snow. This zone is therefore much wider than the preceding. Long before its termination, *Alnus incana*, *Prunus Padus*, and *Populus tremula*, were no more to be seen. A little before the Birch ceases, we miss the *Sorbus aucuparia* (*Pyrus aucuparia*, Fl. Brit.) which for some time had not presented us with any fruit; the *Rubus arcticus* already likewise barren, *Erica vulgaris*, *Aconitum lycoctonum*, &c. Where the birch forest becomes thinner, the reflection of the heat from the sides of the mountains is the strongest. Here in many spots we find the vegetation of *Sonchus Alpinus*, *Struthiopteris*, and *Aconitum lycoctonum* remarkably luxuriant. The drier spots now become covered with *Lichen rangiferinus*, *Tussilago frigida* and *Pedicularis Sceptrum-Carolinum* have their place to the utmost boundary of the birch. Thus far only Charr (*Salmo Alpinus*) is found in the lakes, and higher up all fishing ceases.

"4. All mountains above this limit are called *Fjäll* (Alps). Near rivulets and on the margins of bogs only, is found a little brushwood, consisting of *Salix glauca*, whose gray hue affords but little ornament to the landscape. The lower country is covered with the dark-looking *Betula nana*, which still retains its upright posture. A few Juniper bushes, and some plants of *Salix hastata*, are found scattered about. Every hill is covered with *Arbutus Alpina*, variegated with *Andromeda cærulea* and *Trientalis Europæa*. The more boggy ground is decorated with *Andromeda polifolia* in its greatest beauty, and *Pedicularis lapponica*. On the sides of the mountains, where the reflected heat has the greatest power, grow *Veronica Alpina*, *Viola biflora*, *Pteris crispa*, and *Angelica archangelica*. This zone extends within 1400 feet of the line of perpetual snow. The Glutton (*Mustela gulo*) goes no higher than this. The berries of *Rubus chamæmorus* still ripen here, but not at a greater degree of elevation.

"5. Now no more brushwood is to be seen. The white *Salix lanata* is not above two feet high, even about the rivulets, and *Salyx myrsinites* is of still more humble growth. *Betula nana* occupies the drier situations, but creeps entirely upon the ground. The hills are clothed with the rather brown than green *Azalea procumbens* and *Azalea lapponica*, which give this zone its most peculiar feature. Verdant spots between the precipices, where the sun has the greatest power, produce *Lychnis apetala*, *Erigeron uniflorum*, *Astragalus leontinus* (Jacq. *Ic. Rar.* t. 154.; Willd. *Sp. Pl.* v. iii. 1287.) and *montanus*, with *Ophrys Alpina*. In boggy places, *Aira Alpina*, *Carex ustulata*, and *Vaccinium uliginosum*, are observable. The only berries, however, which ripen at this degree of elevation, are those of *Empetrum nigrum*; but these are twice as large as what grow in the woodlands, and better flavoured. The upper boundary of this zone is 800 feet below the line of perpetual snow. The Laplanders scarcely ever fix their tents higher up, as the pasture for their reindeer ceases a very little way above this point. The mean temperature is about +1° of Celsius (34 of Fahrenheit.)

"6. Next come the snowy Alps, where are patches of snow that never melt. The bare places between still produce a few dark shrubby plants, such as *Empetrum nigrum*, but destitute of berries, *Andromeda tetragona* and *hypnoides*, as well as *Diapensia lapponica*. Green precipices exposed to the sun are decorated with the vivid azure tints of *Gentiana tenella* and *nivalis*, and *Campanula uniflora*, accompanied by the yellow *Draba Alpina*. Colder and marshy situations, where there is no reflected heat, produce *Pedicularis hirsuta* and *flammea*, with *Dryas octopetala*. This zone extends to 200 feet below the limits of perpetual and almost uninterrupted snow.

"7. Beyond it perpetual snow begins to cover the greatest part of the ground, and we soon arrive at a point where only a few dark spots are here and there to be seen. This takes place on the Alps of Quickjock, at the elevation of 4100 feet above the level of the sea; but nearer the highest ridge, and particularly on the Norway side of that ridge, at 3100 feet. Some few plants, with succulent leaves, are thinly scattered over the spongy brown surface of the ground, where the reflected heat is strongest, quite up to the line of uninterrupted snow. These are *Saxifraga stellaris*, *rivularis*, and *oppositifolia*, *Ranunculus nivalis* and *glacialis*, *Rumex digynus*, *Juncus curvatus** and *Silene acaulis*. The mean temperature at the boundary of perpetual snow is +0.4° of Celsius, (32¼° of Fahrenheit.)

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* We know not what species the author intends by this name.

Classification.

7. Heptandria. Stam. 7. Ex. *Trientalis, Limeum, Saururus, Septas.* Plate lxxii. A very small class.

8. Octandria. Stam. 8. Ex. *Vaccinium, Galenia, Cardiospermum, Erica.* Plate lxxii.

9. Enneandria. Stam. 9. Ex. *Laurus, Rheum, Butomus.* Plate lxxii. A very small class.

10. Decandria. Stam. 10. Ex. *Ruta, Hydrangea, Stellaria, Lychnis, Dianthus.* Plate lxxiii.

11. Dodecandria. Stam. 12 to 19. Ex. *Asarum, Agrimonia, Reseda, Aponogeton, Glinus, Sempervivum.*

The twelfth and thirteenth classes consist of plants bearing flowers that contain stamens unconnected with each other, but which are distinguished by their mode of attachment. Thus they stand;

12. Icosandria. Stamens 20 or more, inserted into the calyx, out of the sides of which they grow, commonly forming a kind of ring, as in the strawberry, *Fragaria vesca.* This is truly a natural class. The insertion of the stamens into the calyx is a certain proof that the fruit produced by the flower containing them is good and wholesome, whether it belong to this particular class or not. Ex. *Cactus, Cratægus, Pyrus, Rosa.* Plate lxxiii.

13. Polyandria. Stamens numerous, inserted into the *receptacle*, or base of the flower. Ex. *Papaver, Pæonia, Delphinium, Cimicifuga, Aquilegia, Trollius, Argemone.* Plate lxxiii.

The fourteenth and fifteenth classes are distinguished by the number and the relative lengths of the stamens.

14. Didynamia. Stamens 4, of which two are long and two short. This is a natural class, and contains most of the labiate, ringent, and personate flowers. Ex. *Glechoma, Galeopsis.* Pl. lxxiii. No. 1 and 2.

15. Tetradynamia. Stamens 6, of which four are long and two short. This is also a natural class, which contains all the cruciform flowers. Ex. *Cochlearia, Cardamine.* Plate lxxiv.

The three next classes have their characters founded on the connexion between the stamens.

16. Monadelphia. Stamens united by their filaments into one tube. Ex. *Galaxia, Melochia, Aitonia, Pelargonium, Geranium, Brownea, Pentapetes, Malva.* Plate lxxv.

17. Diadelphia. Stamens united into two bundles, occasionally united at their bases. This class is natural, and consists of papilionaceous flowers. Ex. *Monnieria, Fumaria, Polygala, Spartium.* Pl. lxxv.

18. Polyadelphia. Stamens united into many bundles. This is a very small class, and is closely allied to Icosandria. Ex. *Theobroma, Abroma, Citrus, Hypericum.* Plate lxxiv.

The nineteenth and twentieth classes are also distinguished by the union of the stamens, though this is effected by means different from those employed in the three preceding classes, as we shall now discover.

19. Syngenesia. Stamens united by their *anthers* into a tube very seldom. They are also connected by their filaments. The flowers are compound, (Part I. Sect. ii. Art. 59.) and form a natural and numerous class. Ex. *Scorzonera, Tussilago, Coreopsis, Calendula, Gundelia.* Plate lxxiv.

20. Gynandria. The stamens grow out of, or are united with, the pistil, either in the style or the germen. Ex. *Orchis, Cypripedium, Salacia, Aristolochia, Arum.* Plate lxxiv.

The three next classes are characterised by the relations which the male and female flowers bear to each other.

21. Monœcia. The stamens do not grow in the same flower with the pistils, but both kinds of flowers are to be found on the same plant, as is indicated by the name. Ex. *Artocarpus,* (Plate lxxvi.) *Lemna, Typha, Urtica, Betula,* (Plate lxxiv.) *Amaranthus, Zizania, Guettarda, Quercus, Pinus, Bryonia, Andrachne.*

22. Diœcia. Stamens and pistils are not only in separate flowers, but also in separate plants. Ex. *Pandanus, Vallisneria, Empetrum, Myrica, Humulus, Tamus, Populus, Mercurialis, Carica, Datisca, Rottlera, Cliffortia, Juniperus, Ruscus, Cluytia.* Pl. lxxiv.

23. Polygamia. This class exhibits a considerable variety of character.—Sometimes the stamens and pistils are in the same flowers, sometimes in different flowers in the same plant, and sometimes in flowers in different plants. Ex. *Atriplex, Fraxinus, Ficus.* Plate lxxv.

The twenty-fourth class is the last of Linnæus's artificial system.

24. Cryptogamia. Neither stamens nor pistils are distinctly visible. Ex. *Asplenium, Bryum, Fucus, Agaricus.* Plate lxxv. To this class Linnæus referred the natural order of palms, which are now found referable to the sixth, twenty-first, or twenty-second classes.

See the General Explanation of the Plates at the end of the volume.

Sect. II. *Orders.*

The characters of the Orders of the thirteen first Classes of the Linnæan System, are founded on the number of the pistils (Part I. Sect. ii. Art. 66.)

1. Monogynia	Pistil	1.
2. Digynia		2.
3. Trigynia		3.
4. Tetragynia		4.
5. Pentagynia		5.
6. Hexagynia		6.

Very rare.

7. Heptagynia	7.

Still more rare than the preceding.

8. Octagynia	8.

Very rare.

9. Enneagynia	9.

Dr Smith states, that there is scarcely any known instance of this order.

10. Decagynia	10.
11. Dodecagynia, about	12.
12. Polygynia	Many.

The characters of the two orders of the fourteenth Class, are taken from the fruit.

1. Gymnospermia. Having naked seeds, the number almost always four. Plate lxxiii. No. 1.

2. Angiospermia. Numerous seeds in a capsule. Plate lxxiii. No. 2.

The two orders of the fifteenth Class are also distinguished by the fruit.

1. Siliculosa. Fruit contained in a round pod, or pouch. Plate lxxiii.

2. Siliquosa. Fruit contained in a long pod. *Cardamine.* Plate lxxiv.

The orders of the sixteenth, seventeenth, and eighteenth Classes, are the number of the stamens.

The orders of the nineteenth Class are known by the interblending of the male, female, and hermaphrodite flowers and florets.

1. Polygamia æqualis. Having perfect hermaphrodite florets.

2. Polygamia superflua. Florets of the disc having stamens and pistil, those of the radius having only a pistil, but the pods of all are perfect.

3. Polygamia frustanea. The florets of the disc in this order are hermaphrodite, as in the preceding one: those of the radius either have an abortive pistil, or none at all.

4. Polygamia necessaria. The male flowers in the disc, and the female ones in the radius.

5. Polygamia segregata. Where several flowers having united anthers, with a proper calyx, are included in one common calyx. They may be either simple or compound.

6. Monogamia. When simple flowers have united anthers.

Dr Smith has abolished this order entirely; but as it occurs in the works of Linnæus, we deem it right to introduce it in our account of the Linnæan System.

The orders of the twentieth, twenty-first, and twenty-second Classes, are founded on the number of the stamens. Of this we shall give some further account in a summary of the whole system.

The orders of the twenty-third Class are founded on the same characters that distinguish some of the preceding classes.

1. Monœcia. "Has flowers with stamens and pistils on the same plant; with others, they have only pistils, or only stamens, or perhaps all these three kinds of blossoms occur; but whatever the different kinds may be, they are confined to one plant."

2. Diœcia. "Has the two or three kinds of flowers on two separate plants."

3. Triœcia. "Has them on three separate plants, of which the fig is the only real example; and in that the structure of the flowers is alike in all."

The orders of the twenty-fourth Class are natural. Linnæus only constituted four; to this, another is now added.

1. Filices, or Ferns. The leaves of this order have the fructification disposed occasionally on their backs, occasionally on their summits, and sometimes near the roots. Ex. *Equisetum, Polypodium, Asplenium.* Plate lxxv.

2. Musci. *Mosses.* Are known by having separate leaves and a *calyptra* (Part I. Sect. ii. Art. 67.) which bears the style; this *calyptra* often is covered by a lid. (*Operculum*, Part I. Sect. ii. Art. 67.) Ex. *Bryum, Hypnum, Mnium.* Plate lxxv.

3. * Hepaticæ. *Liverworts.* This order has the frond, that is to say, the leaf and stem united, the capsules of which open by several valves through where the pollen is thrown. Ex. *Jungermannia, Blasia, Riccia.*

4. Algæ. *Flags.* The herb of this order is also a frond, of a pulverulent or filamentous nature, having dry and fibrous branches. The fructification is either imbedded in the disk or in the substance. Ex. *Lichen, Fucus, Ulva, Conferva.* Plate lxxv.

Classification.

5. Fungi. *Mushrooms.* This order consists of those vegetables which have no leaves, and are composed of a fleshy, spongy, or coriaceous substance. The seed of these plants consists of roundish globules full of small grains; and they are sometimes found in the exterior, and sometimes in the interior of the plant. Ex. *Agaricus, Phallus, Lycoperdon.* Pl. lxxv.

Sect. III. *General View of Classification.*

General view of Classification.

Having exhibited the Classes and Orders of the Linnæan system, in a detached and separate sketch; we shall now proceed to give a compendious sketch of both, according to their several relations, and our object will be best answered by a tabular view.

Class I. Monandria.	Orders. 1. Monogynia.
Foreign Natural Order.	Containing *Scitamineæ*, so well described by Mr Roscoe.
British Examples,	*Salicornia. Hippuris.*
	2. Digynia.
Foreign Example,	*Blitum.* Plate lxxii.
Class II. Diandria.	Orders. 1. Monogynia.
Foreign Example,	*Jasminiæ.*
British,	*Veronica.*
	2. Digynia.
British Example,	*Anthoxanthum.*
	3. Trigynia.
Foreign Example,	*Piper.*
Class III. Triandria.	Orders. 1. Monogynia.
British Example,	*Valeriana, Iris,* &c.
	2. Digynia.
British Example,	*Gramineæ.*
	3. Trigynia.
British Example,	*Eriocaulon.*
Class IV. Tetrandria.	Orders. 1. Monogynia.
Foreign Example,	*Proteaceæ.*
British Example,	*Plantago.*
	2. Digynia.
British Example,	*Cuscuta.*
	3. Trigynia.
Foreign Example,	*Boscia.*
	4. Tetragynia.
British Example,	*Potamogeton.*
Class V. Pentandria.	Orders. 1. Monogynia.
British Examples,	*Primula. Cyclamen. Lysimachia. Campanula.* Plate lxxii.
	2. Digynia.
British Examples,	*Chenopodium. Gentiana.*

N. B. The remainder of this Order is chiefly composed of the umbelliferous plants.

	3. Trigynia.
British Example,	*Sambucus.*
	4. Tetragynia.
British Example,	*Parnassia.*
	5. Pentagynia.
Foreign Example,	*Aralia.*
	6. Decagynia.
Foreign Example,	*Schefflera.*
	7. Polygynia.

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* It is proper to observe, that Linnæus established four orders of the class Cryptogamia; to these modern botanists have added the Hepaticæ, which formerly constituted a part of the order Algæ.

Classification.

British Example,	*Myosurus.*
Class VI. HEXANDRIA.	Orders. 1. MONOGYNIA.
British Example,	*Juncus.*
	2. DIGYNIA.
Foreign Example,	*Oryza.*
	3. TRIGYNIA.
British Example,	*Rumex.*
	4. HEXAGYNIA.
Foreign Example,	*Damasonium.*
	5. POLYGYNIA.
British Example,	*Alisma.*
Class VII. HEPTANDRIA.	Orders. 1. MONOGYNIA.
Foreign Example,	*Trientalis.* Plate lxxii.
	2. DIGYNIA.
Foreign Example,	*Limeum.*
	3. TETRAGYNIA.
Foreign Example,	*Saururus.*
	4. HEPTAGYNIA.
Foreign Example,	*Septas.*
Class VIII. OCTANDRIA.	Orders. 1. MONOGYNIA.
British Example,	*Daphne.*
	2. DIGYNIA.
Exotic Example,	*Galenia Africana.*
	3. TRIGYNIA.
Exotic Example,	*Polygonum.*
	4. TETRAGYNIA.
British Example,	*Adoxa* and *Paris.*
Class IX. ENNEANDRIA.	Orders. 1. MONOGYNIA.
Exotic Example,	*Laurus.*
	2. TRIGYNIA.
Exotic Example,	*Rheum.*
	3. HEXAGYNIA.
British Example,	*Butomus umbellatus.* Plate lxxii.
Class X. DECANDRIA.	Orders. 1. MONOGYNIA.
Foreign Example,	*Ruta.*
	2. DIGYNIA.
British Example,	*Saxifraga.*
	3. TRIGYNIA.
British Example,	*Arenaria.*
	4. TETRAGYNIA.
Foreign Example,	*Micropetalon.*
	5. PENTAGYNIA.
British Example,	*Lychnis.* Plate lxxiii.
	6. DECAGYNIA.
Exotic Example,	*Phytolacca.*
Class XI. DODECANDRIA.	Orders. 1. MONOGYNIA.
British Example,	*Asarum.*
	2. DIGYNIA.
British Example,	*Agrimonia.*
	3. TRIGYNIA.
British Example,	*Reseda.*
	4. TETRAGYNIA.
Exotic Example,	*Calligonum.*
	5. PENTAGYNIA.
Exotic Example,	*Glinus.*
	6. DODECAGYNIA.
British Example,	*Sempervivum tectorum.*
	7. POLYGYNIA.
Foreign Example,	*Gastonia.*
Class XII. ICOSANDRIA.	Orders. 1. MONOGYNIA.
Exotic Example,	*Myrtus.*
British Example,	*Prunus.*

	2. DIGYNIA.
British Example,	*Cratægus.*
	3. TRIGYNIA.
Foreign Example,	*Sesuvium.*
	4. PENTAGYNIA.
British Examples,	*Pyrus. Mespilus.*
	5. POLYGYNIA.
British Examples,	*Rosa.* Pl. lxxiii. *Rubus.*
Class XIII. POLYANDRIA.	Orders. 1. MONOGYNIA.
British Examples,	*Cistus. Nymphæa.*
	2. DIGYNIA.
Exotic Example,	*Trichocarpus.*
	3. TRIGYNIA.
British Example,	*Delphinium.*
	4. TETRAGYNIA.
Exotic Example,	*Caryocar.*
	5. PENTAGYNIA.
British Example,	*Aquilegia.*
	6. POLYGYNIA.
British Example,	*Anemone.*
Exotic Examples,	*Liriodendron. Magnolia.*
Class XIV. DIDYNAMIA.	Orders. 1. GYMNOSPERMIA.
British Examples,	*Mentha. Leonurus.*
	2. ANGIOSPERMIA.
British Example,	*Orobanche.*
Class XV. TETRADYNAMIA.	Orders. 1. SILICULOSA.
British Example,	*Crambe.*
	2. SILIQUOSA.
British Example,	*Cardamine.* Pl. lxxiv.
Class XVI. MONADELPHIA.	Orders 1. TRIANDRIA.
Exotic Example,	*Sisyrinchium.*
	2. PENTANDRIA.
British Example,	*Erodium.*
	3. HEPTANDRIA.
Exotic Example,	*Pelargonium.*
	4. OCTANDRIA.
Exotic Example,	*Pistria.*
	5. DECANDRIA.
British Example,	*Geranium.*
	6. ENDECANDRIA.
Exotic Example,	*Brownea.*
	7. DODECANDRIA.
Exotic Example,	*Monsonia.*
	8. POLYANDRIA.
British Example,	*Althæa.*
Class XVII. DIADELPHIA.	Orders. 1. PENTANDRIA.
Exotic Example,	*Monnieria.*
	2. HEXANDRIA.
Exotic Example,	*Saraca.*
	3. OCTANDRIA.
British Example,	*Polygala.*
	4. DECANDRIA.
British Examples,	*Vicia. Genista.*
Class XVIII. POLYADELPHIA.	Orders. 1. DECANDRIA.
Exotic Example,	*Theobroma.*
	2. DODECANDRIA.
Foreign Example,	*Bubroma.*
	3. ICOSANDRIA.
Exotic Examples,	*Melaleuca. Citrus.*
	4. POLYANDRIA.
British Example,	*Hypericum.*

Classification.

have a corolla with six petals; as in *Tulipa, Ornithogalum, Bromelia.*

11. *Sarmentaceæ,* that have very weak stems and liliaceous flowers; as *Gloriosa, Smilax, Asparagus.*

12. *Oleraceæ,* that have plain flowers, *i. e.* of no beauty, as in *Blitum, Spinacia, Petiveria, Herniaria.*

13. *Succulentæ,* that have very thick fleshy leaves, as in *Cactus, Mesembryanthemum.*

14. *Gruinales,* have a pentapetalous corolla, several pistils, and a long pointed capsule, as in *Linum.*

15. *Inundatæ,* grow under water with flowers of no beauty, as *Hippuris, Zannichellia, Ruppia.*

16. *Calyciflora,* that have only a calyx, in which the stamina are inserted, as in *Eleagnus, Osyris.*

17. *Calycanthemæ.* In these the calyx is seated on the germen or grows to it, and the flowers are very beautiful, as in *Epilobium, Gaura, Oenothera.*

18. *Bicornes,* have the antheræ furnished with two long straight points or horns, as in *Ledum, Vaccinium, Erica, Pyrola.*

19. *Hesperides,* these have strong ever-green leaves, sweet-smelling flowers, and many stamina, as in *Myrtus, Psidium, Eugenia.*

20. *Rotaceæ,* bearing a wheel-shaped corolla, as in *Anagallis, Lysimachia, Phlox.*

21. *Preciæ,* that have spacious flowers which appear early in the spring, as *Primula, Androsace.*

22. *Caryophylleæ,* those having a monophyllous tubular calyx, a pentapetalous corolla, ten stamina, and long ungues to the petals, as *Dianthus, Saponaria.*

23. *Trihilatæ,* these have a style with three stigmata, and winged or inflated capsules, as *Melia.*

24. *Corydales.* The flowers of these have either a spur, (*calcarata*), or are of a singular form, as in *Epimedium, Pinguicula.*

25. *Putamineæ,* that bear fruit in a hard shell, as in *Capparis, Morisonia.*

26. *Multisiliquæ,* bearing many siliques, as in *Pæonia, Trollius, Caltha.*

27. *Rhoeadæ,* that have a caducous calyx, and a capsule or silique, as in *Argemone, Chelidonium.*

28. *Luridæ,* that have commonly a monopetalous corolla, a pericarpium and five stamina. They are endowed for the most part with poisonous or dangerous qualities, as *Datura, Solanum.*

29. *Campanaceæ*; these have bell-shaped flowers, as the *Campanula, Convolvulus.*

30. *Contortæ*; in these the corolla is twisted, or the stamina and pistils are covered with leaves resembling petals; as in *Nerium, Asclepias.*

31. *Vepreculæ,* have a monophyllous calyx, coloured like a corolla; as in *Dirca, Daphne.*

32. *Papilionaceæ;* these include the papilionaceous flowers, as *Vicia, Pisum, Phaseolus.*

33. *Lomentaceæ;* these bear a legumen or lomentum, but not a papilionaceous flower; as *Mimosa, Cassia, Ceratonia, Gleditschia.*

34. *Cucurbitaceæ,* whose fruit is a pepo or pumpkin, and in general they have united stamina, as in *Cucumis, Bryonia, Passiflora.*

35. *Senticosæ* have a polypetalous corolla, and the fruit consists of a number of seeds, either naked or slightly covered. The leaves and stems are either hairy or prickly, as in *Potentilla, Alchemilla, Rubus.*

36. *Pomaceæ* have many stamina inserted in the calyx, and a drupa or apple for fruit, as *Sorbus.*

37. *Columniferæ;* in these the stamina unite and form a long tube, as in *Malva, Althæa, Hibiscus.*

38. *Tricoccæ,* bearing a trilocular capsule, as *Euphorbia, Tragia, Ricinus.*

39. *Siliquosæ,* bearing a silique or silicle, as *Thlaspi, Draba, Raphanus.*

40. *Personatæ,* bearing a masked or personate flower, as in *Antirrhinum.*

41. *Asperifoliæ;* these have four naked seeds, a monopetalous corolla, five stamina, and rough leaves, as in *Echium, Symphytum, Anchusa.*

42. *Verticillatæ*; these have labiated or ringent flowers, as *Thymus, Monarda, Nepeta.*

43. *Dumosæ;* these are shrubby plants, and their stem is furnished with a soft medulla or pith; their flowers are small, the petals with four or five laciniæ, as in *Viburnum, Rhamnus, Euonymus.*

44. *Sepiariæ;* shrubs, commonly with a tubular and laciniated corolla, and a few stamina, in general only two, as in *Syringa, Ligustrum, Jasminum.*

45. *Umbellatæ,* bearing an umbel of flowers, a pentapetalous corolla, five stamina, two styles, and two naked seeds; as in *Apium, Pastinaca, Daucus.*

46. *Hederaceæ;* these have a quinquefid corolla, five or ten stamina, and fruit like a berry, on a compound racemus; as in *Hedera, Panax, Vitis, Cissus.*

47. *Stellatæ;* these have a quadrifid corolla, four stamina, and two naked seeds. The leaves are commonly verticillated; as in *Galium, Asperula.*

48. *Aggregatæ;* these appear like compound flowers, but have no united antheræ; as *Scabiosa.*

49. *Compositæ;* this order contains all the compound flowers.

50. *Amentaceæ;* this contains those plants whose fruit is a catkin.

51. *Coniferæ;* this contains those that bear a strobilus; as *Pinus, Juniperus,* &c.

52. *Coadunatæ;* those which bear several berries or similar fruit united in one, as in *Annona Uvaria.*

53. *Scabridæ,* that bear rough leaves and flowers of no beauty, as *Ficus, Urtica, Parietaria, Cannabis.*

54. *Miscellaneæ;* to this order belong all those plants which cannot be referred to one or other of the foregoing.

55. *Filices.*
56. *Musci.*
57. *Algæ.*
58. *Fungi.*
Part III. Chap. i. Sect. 2. Pl. lxxv.

SECT. II. *Natural Method of Jussieu.*

Natural Method Jussieu.

The illustrious Anthony Laurence De Jussieu, has given the most perfect natural method that has hitherto appeared; we shall therefore give such a sketch of it as our plan will allow.

This philosopher contends for three great and principal divisions among plants, founded on the form of the embryo. Those are called ACOTYLEDONS, when the seeds are destitute of lobes, such as the Class *Cryptogamia;* those are named MONOCOTYLEDONS, that have only one lobe; and, last of all, those are named DICOTYLEDONS that have two lobes.

The first division contains only one Class, which is divided into six orders. 1. *Fungi.* 2. *Algæ.* 3. *Hepaticæ.* 4. *Musci.* 5. *Filices.* 6. *Naiades.* These orders contain the whole of the *Cryptogamia* of Linnæus.

The second great division is composed of three Classes, the first of which (*Monocotyledones. Stamina hypogyna*) is divided into four orders. 1.

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Aroideæ. 2. *Typhæ.* 3. *Cyperoideæ.* 4. *Gramineæ.*

The second Class (*Monocotyledones. Stamina perigyna*) consists of eight orders. 1. *Palmæ.* 2. *Asparagi.* 3. *Junci.* 4. *Lilia.* 5. *Bromeliæ.* 6. *Asphodeli.* 7. *Narcissi.* 8. *Irides.*

The third Class (*Monocotyledones. Stamina epigyna*) is divided into four orders. 1. *Musæ.* 2. *Cannæ.* 3. *Orchideæ.* 4. *Hydrocharides.*

The last great division, that of DICOTYLEDONS, is divided into eleven classes.

Class I. PLANTÆ DICOTYLEDONES APETALÆ. *Stamina epigyna,** which contains only one order, ARISTOLOCHIÆ.

Class II. PLANTÆ DICOTYLEDONES APETALÆ. *Stamina perigyna.* In this class there are six orders.

1. *Eleagni.* Char. The stamens are at the summit of the tube of the calyx. The germen exterior. Ex. *Thesium. Eleagnus.*

2. *Thymeleæ.* Char. Stamens at the superior part of the tube. Germen superior. Ex. *Daphne.*

3. *Proteæ.* Char. Stamens inserted in the laciniæ of the calyx. Germen superior. No albumen. Ex. *Protea. Banksia.*

4. *Lauri.* Char. Stamens at the base of the calyx. Germen superior. Ex. *Laurus. Myristica.*

5. *Polygoneæ.* Char. Stamens at the base of the calyx. Germen superior. Farinaceous albumen surrounding the embryo. Ex. *Polygonum. Rumex.*

6. *Atriplices.* Char. Stamens at the base of the calyx. Albumen surrounded by the embryo. Ex. *Rivinia. Galenia. Salsola. Axyris.*

Class III. PLANTÆ DICOTYLEDONES APETALÆ. *Stamina hypogyna.* In this class there are four orders.

1. *Amaranthi.* Char. Calyx divided and surrounded with scales at the base. The circle enclosing farinaceous albumen. Ex. *Blitum.* Plate lxxii.

2. *Plantagines.* Char. Tube petal-like, monophyllous, and elongated. The corcle enveloped by a horny albumen. Ex. *Plantago. Littorella.*

3. *Nyctagines.* Calyx tubular, petal-shaped, sometimes surrounded by a second calyx. Albumen surrounded by the corcle. Ex. *Nyctago. Boerhaavia.*

4. *Plumbagines.* Char. A calyx and a corolla. Farinaceous albumen surrounding the corcle. Ex. *Plumbago. Statice.*

CLASS IV. PLANTÆ DICOTYLEDONES MONOPETALÆ. *Corolla hypogyna.* This class contains fifteen orders.

1. *Lysimachiæ.* Char. Corolla regular. Stamens commonly five, equal in number, and opposite to the lobes of the corolla. Fruit unilocular, polyspermous. Ex. *Centunculus. Androsace. Primula.*

2. *Pedicularis.* Char. Corolla irregular. Stamens didynamous. Fruit bilocular. Ex. *Polygala.*

3. *Acanthi.* Char. Corolla irregular. Capsule bilocular, many-seeded, and bivalved. Ex. *Acanthus.*

4. *Jasmineæ.* Char. Corolla regular. Two stamens. Capsule bilocular. Ex. *Fraxinus. Ligustrum.*

5. *Vitices.* Char. Stamens didynamous. Fruit commonly a fleshy pericarp. Ex. *Vitex. Verbena.*

6. *Labiatæ.* Char. Corolla irregular. Seed-vessel four-cleft, four naked seeds fixed on the receptacle at the base of the calyx. Ex. *Salvia. Ajuga. Mentha.*

7. *Scrophulariæ.* Char. Corolla irregular. Stamens didynamous. Capsule bilocular. Albumen fleshy. Ex. *Scrophularia. Digitalis. Bæa. Besleria.*

8. *Solaneæ.* Char. Five stamens. Albumen fleshy. Ex. *Datura. Atropa. Bontia.*

9. *Borragineæ.* Char. Corolla regular. Five stamens. Germen four-lobed. Ex. *Pulmonaria.*

10. *Convolvuli.* Char. Corolla regular. Five stamens. Fruit capsular. Ex. *Convolvulus. Cressa.*

11. *Polemonia.* Char. Corolla regular. Capsule trilocular. Ex. *Polemoneum. Phlox. Cobæa.*

12. *Bignoniæ.* Char. Corolla irregular. Capsule bilocular. No albumen. Ex. *Bignonia. Sesamum.*

13. *Gentianæ.* Char. Corolla regular, capsular, unilocular, or bilocular. Ex. *Gentiana. Exacum.*

14. *Apocineæ.* Char. Corolla regular. Five stamens. Two seed vessels. Ex. *Vinca. Nerium.*

15. *Sapotæ.* Char. Corolla regular. Drupa multilocular. Seeds large, hard, and having a lateral scar. Ex. *Sapota. Jacquinia. Mimusops.*

CLASS V. PLANTÆ DICOTYLEDONES MONOPETALÆ. *Corolla perigyna.* This class is divided into four orders.

1. *Guaiacanæ.* Char. Fruit multilocular. Ex. *Styrax. Diospyros. Royena.*

2. *Rhododendra.* Char. Fruit multilocular. Cells containing one seed. Ex. *Rhododendrum. Ledum.*

3. *Ericæ.* Char. Fruit multilocular, and many-seeded. Ex. *Erica. Epacris. Vaccinium.*

4. *Campanulaceæ.* Char. Fruit multilocular, opening by holes situated at the apex of the leaf, or on the sides. Cells containing many seeds. Ex. *Campanula. Roella. Scævola. Lobelia.*

CLASS VI. PLANTÆ DICOTYLEDONES MONOPETALÆ. *Corolla epigyna. Antheræ connatæ.* This class contains three orders.

1. *Chichoraceæ.* Char. Florets ligulate and hermaphrodite. Ex. *Leontodon. Lampsana. Picris.*

2. *Cinarocephalæ.* Char. Flowers composed of florets, which are occasionally hermaphrodite, occasionally intermixed with neuter or female florets. Ex. *Carlina. Carduus. Calcitrapa.*

3. *Corymbiferæ.* Char. Flowers ligulate or radiate. Ex. *Calendula. Aster. Anthemis. Bidens.*

CLASS VII. PLANTÆ DICOTYLEDONES MONOPETALÆ. *Corolla epigyna. Anthera distincta.* This class contains three orders.

1. *Dipsaceæ.* Char. A single seed surrounded by the inner calyx. Albumen fleshy. Ex. *Dipsacus.*

2. *Rubiaceæ.* Char. Two naked seeds, or a pericarp containing one or more cells. Ex. *Asperula.*

3. *Caprifolia.* Char. Pericarp, having one or more

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* The terms *perigyna*, *epigyna*, and *hypogyna*, are derived from the Greek. The derivations will be sufficiently explanatory of their import. *Perigyna*, from περι, *around*, and γυνη, *female*, or, as it here means, the pistil; so that perigynous stamens mean nothing more than that the stamens are placed around the pistil. *Epigyna*, from επι, *upon*, and γυνη, *female*, which implies the insertion of the stamens on the pistil. *Hypogyna*, from υπο, *under*, and γυνη, *female*, thereby meaning the insertion of the stamens under the germen, or the receptacle of the pistil.

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cells. Corcle situated in a small cavity at the apex of a fleshy albumen. Ex. *Lonicera. Viscum. Hedera.*

Class VIII. Plantæ Dicotyledones Polypetalæ. *Stamina epigyna.* In this class there are only two orders.

1. *Araliæ.* Char. The seeds are inclosed in a pericarp. Ex. *Aralia. Panax. Gastonia.*

2. *Umbelliferæ.* Char. Two seeds naked. Ex. *Apium. Cicuta. Crithmum. Astrantia.*

Class IX. Plantæ Dicotyledones Polypetalæ. *Stamina hypogyna.* This class contains twenty-two orders.

1. *Ranunculaceæ.* Char. Many seed vessels. Albumen corneous. Ex. *Anemone. Trollius. Actæa.*

2. *Papaveraceæ.* Char. One seed-vessel. Corcle, having cylindrical lobes. Ex. *Papaver. Fumaria.*

3. *Cruciferæ.* Char. One seed vessel. No albumen. Ex. *Sinapis. Brassica. Lunaria.*

4. *Capparides.* Char. One seed vessel. Cylindrical lobes. Ex. *Cadaba. Cleome. Reseda.*

5. *Sapindi.* Char. One seed vessel. No albumen. Lobes bent back. Ex. *Sapindus. Cardiospermum.*

6. *Acera.* Char. Germen simple or three-lobed. No albumen. Straight lobes. Ex. *Æsculus. Acer.*

7. *Malpighiæ.* Char. Considered the same as the preceding order by Ventenat and some others.

8. *Hyperica.* Char. Germen simple. Corcle naked. Ex. *Hypericum. Ascyrum.*

9. *Guttiferæ.* Char. Germen simple. No albumen. Lobes coriaceous, plain. Ex. *Clusia. Rheedia.*

10. *Aurantia.* Char. Seed vessel simple. No albumen. Plain fleshy lobes. Ex. *Fissilia. Citrus. Thea.*

11. *Meliæ.* Char. Germen simple. No albumen. Corcle sometimes curved. Ex. *Turræa. Melia.*

12. *Vitis.* Char. Germen simple. No albumen. Embryo straight. Lobes plain. Ex. *Vitis. Cissus.*

13. *Gerania.* Char. Germen simple. No albumen. Radicle a little bent. Lobes reflected. Ex. *Geranium. Oxalis. Tropæolum. Balsamina.*

14. *Malvaceæ.* Char. Germen simple. Lobes bent on the radicle. Leaves alternate, having stipules. Ex. *Palava. Malva. Hibiscus. Adansonia. Abroma.*

15. *Magnoliæ.* Char. Many seed vessels. Albumen fleshy. Corcle at the base of the albumen. Ex. *Magnolia. Liriodendrum. Dillenia.*

16. *Anonæ.* Char. Many seed vessels. Corcle at the umbilicus. Ex. *Anona.*

17. *Menisperma.* Char. Many seed vessels. Two cells. Corcle at the summit of the albumen. Ex. *Menispermum. Cissampelos.*

18. *Berberides.* Char. Germen one. Corcle straight. Lobes planes. Ex. *Epimedium. Hamamelis.*

19. *Tiliaceæ.* Char. Germen simple. Albumen fleshy. Corcle sometimes a little bent. Lobes plane. Ex. *Hermannia. Tilia. Bixa.*

20. *Cisti.* Char. Germen simple. Albumen fleshy. Radicle bent on the lobes, or the corcle spiral. Ex. *Cistus. Helianthemum.*

21. *Rubaceæ.* Char. Germen simple. Sometimes no albumen. Corcle straight. Lobes foliaceous. Ex. *Fagonia. Ruta. Empleurum.*

22. *Caryophylleæ.* Char. Germen simple. Corcle bent. Farinaceous, albumen in the middle. Ex. *Caryophyllus. Holosteum. Bufonia. Alsine. Dianthus.*

Class X. Plantæ Dicotyledones Polypetalæ. *Stamina perigyna.* In this class there are thirteen orders.

1. *Sempervivæ.* Char. Albumen fleshy. Corcle straight. Ex. *Rhodiola. Sempervivum. Sedum.*

2. *Saxifragæ.* Char. Germen simple. Albumen fleshy. Corcle straight. Ex. *Saxifraga. Adoxa.*

3. *Cacti.* Char. No albumen. Corcle bent. Ex. *Cactus. Ribes.*

4. *Portulaceæ.* Char. Farinaceous, albumen in the middle. Corcle bent or ring-shaped. Corolla at the base of the calyx. Ex. *Tamarix. Limeum.*

5. *Ficoidæ.* Char. Albumen, central or lateral. Corolla inserted at the summit of the calyx. Ex. *Glinus. Mesembryanthemum.*

6. *Onagræ.* Char. No albumen. Corcle straight. Stamens determinate. Ex. *Epilobium. Fuchsia. Aizoon.*

7. *Myrti.* Char. No albumen. Corcle straight. Stamens indeterminate. Petals determinate. Ex. *Myrtus. Melaleuca.*

8. *Melastomæ.* Char. No albumen. Corcle bent. Stamens determinate and double the number of petals. Ex. *Melastoma. Osbeckia.*

9. *Salicariæ.* Char. No albumen. Corcle straight. Ex *Lythrum. Peplis.*

10. *Rosaceæ.* Char. No albumen. Corcle straight. Stamens indeterminate. Ex. *Rosa.* Pl. lxxiii. *Rubus.*

11. *Leguminosæ.* Char. Corolla sometimes papilionaceous. No albumen. Corcle sometimes bent. Ex. *Mimosa. Moringa. Bauhinia. Lotus.*

12. *Terebintaceæ.* Char. No albumen. Corcle bent. Corolla regular. Petals inserted at the base of the calyx. Ex. *Rhus. Cneorum. Juglans.*

13. *Rhamni* Char. Albumen fleshy. Corcle straight. Germen simple. Ex. *Euonymus. Ilex.*

Class XI. Plantæ Dicotyledones Apetalæ. *Stamina idiogyna.* In this class, which is the last of M. De Jussieu's method, there are five orders.

1. *Euphorbiæ.* Char. Fruit formed of two or more pods. Albumen fleshy. Cotyledons plane. Ex. *Mercurialis. Buxus. Croton.*

2. *Cucurbitaceæ.* Char. The bark of the berry usually hard. Ex. *Bryonia. Cucumis. Melothria.*

3. *Urticæ.* Char. Flowers distinct, or collected in a common involucre. Fruit various. No albumen. Ex. *Ficus. Artocarpus.* Pl. lxxvi. *Humulus. Piper.*

4. *Amentaceæ.* Char. Flowers disposed in catkins. Ex. *Ulmus. Salix. Quercus. Corylus.*

5. *Coniferæ.* Char. Fruit in the form of a cone. Cotyledons cylindrical. Ex. *Taxus. Pinus. Abies.*

Such is the outline of M. Jussieu's method, with some of the improvements suggested by Ventenat; the original arrangement and nomenclature being still retained. Our limits preclude us from pointing out the alterations which have been introduced, or, indeed, of detailing, as fully as might have been expected, the particular views of Brown and Ventenat.

Classification is treated of in Linnæi *Philosophia Botanica et Fundamenta Botanica; Genera Plantarum,* Auctore Jussieu; *Flore Françoise par* Lamarck *et* Decandolle; *Physiologie Vegétale, par* Gerardin, *Traité d'Anatomie et de Physiologie Vegetale, par* M. Mirbel; Willdenow's *Introduction,* and Smith's *Introduction;* Brown's *Prodromus Floræ Novæ Hollandiæ et Insulæ Van Diemen* 1810. See also the article Jussieu. (c. m.)

6. *Angustifolium.* In the marshes of Madagascar. *Peren.*
7. *Cardamomum.* In the shady parts at the roots of the mountains in India. *Peren.*
8. *Villosum.* In the wet mountainous parts of India. *Peren.*
9. *Echinatum.* Shady woods of India. *Peren.*
10. *Repens.* In the mountains of Gate in Malabar. *Peren.*
11. *Granum Paradisi.* At the roots of mountains in Madagascar, Guinea, Ceylon. *Peren.*
*12. *Afzelii.* Sierra Leone. *Peren.*
*13. *Racemosum.* Woods of Peru. *Peren.*
*14. *Thyrsoideum.* Woods of Peru. *Peren.*
*15. *Uliginosum.* Roscoe, *Linn. Trans.* viii. 353.
For species 13, 14, see Ruiz et Pavon *Flor. Peruv. et Chil.* i. p. 2. Species 9 is made a species of *Costus* by Persoon. Species 3 is made a species of *Curcuma* by Roscoe.

7. Costus. *Cal.* 3-fidus gibbus. *Cor.* 3-partita, ringens. *Nectar.* 2-labiatum: labio inferiore maximo 3 lobo.
1. *Arabicus.* In the warmer parts of America, and the East and West Indies. *Peren.*
2. *Spicatus.* On the banks of torrents in the mountainous parts of the Caribbean Isles, and also in Brazil. *Peren.*
3. *Speciosus.* In the East Indies. *Peren.*
*4. *Scaber.* Woods of Peru. *Peren.*
*5. *Lævis.* Woods of Peru. *Peren.*
*6. *Argenteus.* Woods of Peru. *Peren.*
*7. *Zerumbet.* China. *Peren.*
*8. *Spiralis.* Jacquin, *Hort. Schonb.* v. i. Tab. 1.
For species 4, 5, 6, see *Flor. Peruv.* i. p. 2, 3. Species 7, see Wendland, *Sertum Hannoveranum*, Fasc. iv. p. 3. Species 8, see Roscoe, *Linn. Trans.* viii. p. 350.

10. Maranta. *Cal.* 3-phyllus. *Cor.* 3-fida. *Nect.* 3-partitum, lacinia tertia superiore latere antherifera.
1. *Arundinacea.* In the warm parts of America. *Peren.*
2. *Tonchat.* In the woods of India and Cochinchina. *Shrub.*
3. *Malaccensis.* In Malacca. *Peren.*
4. *Comosa.* In Surinam. *Peren.* (Perhaps a new genus.)
*5. *Capitata.* Peru. *Peren.* } See *Flor. Peruv.*
*6. *Lateralis.* Peru. *Peren.* } i. p. 3. t. 8.
*7. *Lutea.* Jacq. *Ic. Rar.* v. ii. Tab. 101.
*8. *Sylvatica.* Bot. Gard. Liverpool.
Species 7, 8, see Roscoe, *Linn. Trans.* viii. p. 340. Species 3 is ranked under Alpinia by Roscoe.

1. Canna. *Cor.* 6-partita, erecta. *Nect.* 2-partitum, revolutum. *Stylus* lanceolatus, corollæ adnatus. *Cal.* 3-phyllus.
1. *Indica.* Asia, Africa, and America, between the tropics. *Peren.*
2. *Angustifolia.* In America between the tropics, in wet and shady places. *Peren.*
3. *Glauca.* Carolina, in wet places. *Peren.*
4. *Juncea.* China. *Peren.*
*5. *Lutea.* Bot. Gard. Liverpool.
*6. *Coccinea.* Curt. *Bot. Mag.* Tab. 454.
*7. *Patens.* Aiton, *Hort. Kew.* *Peren.*
*8. *Flaccida.* South Carolina. *Peren.*
*9. *Paniculata.* Peru. *Peren.*
*10. *Iridiflora.* Peru. *Peren.*
Species 9, 10, see Ruiz et Pavon, *Flor. Peruv. et Chil.* p. 1.; and Persoon, *Synopsis*, p. 1. Species 5, 6, 7, 8, see Roscoe, *Linn. Trans.* vol. viii. p. 338.

14. Phrynium. *Cal.* 3-phyllus. *Petala*, 3 æqualia tubo nectarii adnata. Nectarium 1-phyllum, tubo filiformi, limbo, 4-partito. *Caps.* 3-locul. *Nuces* 3.
1. *Capitatum.* In the shady and wet parts of Malabar, Cochinchina, and China. *Peren.*

13. Thalia. *Cor.* 5-petala: duo interiora minora. *Nectar.* lanceolatum concavum. *Drupa* nuce uniloculari. *Cal.* triphyllus.
1. *Geniculata.* South America. *Peren.*
2. *Cannæformis.* In Mallicollo, in the New Hebrides. *Peren.*
*3. *Dealbata.* South Carolina. *Peren.*

9. Myrosma. *Corolla* 5-partita irregularis. *Cal.* duplex, exterior 3-phyllus, interior 3-partit. *Caps.* 3-gona 3-locul. polysperma.
1. *Cannæformis.* In Surinam. *Shrub.*

Sect. II. *The Germen inferior and four-celled.*

18. Lopezia. *Cal.* 4-phyllus. *Cor.* 5-petala inæqualis. *Caps.* 4-locul. 4-valvis polysperma.
1. *Mexicana*, or *Racemosa.* Mexico. *Ann.*
*2. *Coronata.* Mexico. *Ann.*

Sect. III. *The Germen superior.*

15. Philydrum. *Spatha* 1-flora. *Cal.* 0. *Cor.* 4-petala irregularis. *Caps.* 3-locul. polysperma.
1. *Lanuginosum.* In the wet grounds of Cochinchina and New South Wales. *Peren.*
*2. *Pygmæum.* New Holland. See Brown's *Prodromus*, p. 264.

16. Cucullaria. *Cal.* 4-partitus. *Cor.* 4-petala inæqualis calcarata. *Filamentum* petaliforme. *Anthera* loculis discretis!
1. *Excelsa.* In the woods of Guiana. *Shrub.*

17. Qualea. *Cal.* 4-partitus. *Cor.* dipetala. *Bacca?*
1. *Rosea.* In the woods of Guiana. *Shrub.*
2. *Cærulea.* In the woods of Guiana. *Shrub.*

19. Usteria. *Cal.* 4-dentatus; lacinia unica reliquis multo majore. *Cor.* infundibuliformis 4-dentata. *Caps.* 1. locul. 2-sperma. *Semina* arillata.
1. *Guineensis.* Guinea. *Shrub.*
The *Usteria* of Cavanilles belongs to the class Didynamia, and is called Maurandia by Jacquin.

Sect. IV. *Monospermæ, or with one Seed.*

20. Boerhaavia. *Cal.* margo integerrimus. *Cor.* 1-petala, campanulata, plicata. *Sem.* 1 nudum, inferum. (*Stam.* 1 s. 2.)
1. *Erecta.* Vera Cruz, Jamaica, East Indies. *Peren.*

Class I. Monandria.

2. *Adscendens.* Guinea.
3. *Diffusa.* Warm parts of America and East Indies. *Peren.*
4. *Hirsuta.* Dry and sandy parts of Jamaica. *Peren.*
5. *Plumbaginea.* Spain, at the bottom of mountains. *Peren.*
6. *Scandens.* Coast of Jamaica, and other West India Islands. *Shrub.*
7. *Excelsa.* Very like the preceding. *Shrub.*
8. *Repanda.* China and India.
9. *Chærophylloides.* Province of Chancay in Peru. *Ann.*
10. *Repens.* Nubia, between Mocho and Tangos. *Peren.*
11. *Angustifolia.*
12. *Tetrandria.* Society Isles.
* 13. *Mutabilis.* New Holland.
* 14. *Pubescens.* New Holland.

See Brown's *Prodromus*, p. 422.

The plants of this genus have sometimes 1, 2, 3, 4, and 10 stamina. Persoon (*Synopsis*, p. 36.) ranks them in the class TRIANDRIA.

‡ 23. HIPPURIS. *Cal.* margo bilobus. *Petala* nulla. *Stigma* simplex. *Sem.* 1.
1. *Vulgaris.* Springs, ditches, and lakes of Europe. *Peren.*
2. *Tetraphylla*, or *Maritima*. Sea coasts of Sweden and Finland about Abo. *Peren.*

22. SALICORNIA. *Calyx* ventriculosus, integer. *Petala* 0. *Sem.* 1.
1. *Herbacea.* Britain, sea coasts of Europe, and in Virginia. *Ann.*
2. *Perennans.* Siberia at Jaik. *Peren.*
3. *Fruticosa.* Shores of Europe. *Shrub.*
4. *Strobilacea.* Salt banks of the Caspian Sea. *Shrub.*
5. *Virginica.* Virginia.
6. *Arabica.* Arabia. *Shrub.*
7. *Foliata.* Siberia. *Shrub.*
8. *Amplexicaulis.* Banks of the lake Bardo, in Tunis. *Shrub.*
9. *Caspica.* Caspian Sea and Media. *Shrub.*
* 10. *Indica.* Shore near *Tranquebar*, New Holland, and Van Diemen's Island.
* 11. *Arbuscula.* New Holland and Van Diemen's Island.

Species 10, 11, see Willdenow, *Nov. Act. Soc. Berol.* ii. and Brown's *Prodromus*, p. 410.

21. POLLICHIA. *Cal.* 1-phyllus 5-dentatus. *Cor.* 0. *Sem.* 1. *Recept.* Squamæ baccatæ, fructus includentes.
1. *Campestris.* Cape of Good Hope. *Bien.*

24. MITHRIDATEA. *Recept.* multiflorum 4-fidum. *Cal.* 0. *Cor.* 0. *Semina* solitaria receptaculo carnoso immersa.
1. *Quadrifida.* Islands of Madagascar, Mauritius, and Bourbon. *Shrub.*

ORDER II. DIGYNIA.

SECT. V. *Plants.*

25. LACISTEMA. *Cal.* amenti squama *Cor.* 4-partita. *Filamentum* bifidum. *Bacca* pedicellata monosperma.
1. *Myricoides.* In the mountains of Jamaica, and at Surinam. *Shrub.*

Persoon ranks this genus in the order Monogynia. *Synops.* p. 5.

26. CORISPERMUM. *Cal.* 0. *Petala* 2. *Sem.* 1. ovale, nudum.
1. *Hyssopifolium.* Wolga in Tartary, Gillau in Russia, and at Montpellier. *Ann.*
2. *Squarrosum.* Tartary, in the deserts of the Cossacs. *Ann.*
*3. *Orientale.* In the East. See Lamarck, *Illustrat. des genres*, No. xliv.

‡ 27. CALLITRICHE. *Cal.* 0. *Petala* 2. *Caps.* 2-locularis, 4-sperma.
1. *Verna.* Ditches of Europe.
2. *Intermedia.* Ditches of Europe.
3. *Autumnalis.* Ditches of Europe.
*4. *Æstivalis.* France.
*5. *Tenuifolia.* Near Fountainbleau.

Species 4, 5. See Persoon, *Synopsis*, p. 5. Dr Smith has united species 1 and 3 under the name of *Aquatica*.

28. BLITUM. *Cal.* 3-fidus. *Pet.* 0. *Sem.* 1. calyce baccato.
1. *Capitatum.* Europe, in the Tyrol. *Ann.*
2. *Virgatum.* Tartary, France, and Spain. *Ann.*
*3. *Chenopodioides.* Tartary. *Ann.* See Persoon, *Synopsis*, i. p. 524.

29. MNIARUM. *Cal.* 4-partitus superus. *Cor.* 0. *Semen* 1.
1. *Biflorum.* New Zealand, Terra del Fuego, and Van Diemen's Island. *Peren.*
2. *Fasciculatum.* Van Diemen's Island.

See Brown's *Prodromus*, p. 412. This genus is the *Ditoca* of Banks and Gærtner, and differs only from the genus *Scleranthus* in Class X, in having more frequently 1 stamen, in its 4-cleft calyx, and in its inflorescenee.

SECT. VI. *Grasses.*

30. CINNA. *Cal.* gluma 2-valvis, uniflora. *Cor.* gluma 2-valvis. *Sem.* 1.
1. *Arundinacea.* At Hudson's Bay. *Peren.*

NEW GENERA.

New Genera.

ORDER I. MONOGYNIA.

I. ZINZIBER. *Anthera* duplex. *Filam.* extra antheram elongatum, apice subulatium, sulcatum. (*Roscoe.*)
1. *Officinale.* East Indies. *Peren.*
2. *Zerumbet.* East Indies. *Peren.*
3. *Mioga.* Japan. *Peren.*
4. *Purpureum.* East Indies. *Peren.*
5. *Roseum.* Roxb. *Pl. Corom.* 2. Tab. 126.

The 3 first species of the preceding new genus, formed by Mr Roscoe, (see *Linn. Trans.* viii. p. 347.), are the same as the 1st, 2d, and 5th species, already given after Willdenow under the genus AMOMUM.

II. APHELIA. *Squamæ* spicæ distichæ unifloræ.

Gluma univalvis, interior. *Anthera* simplex. *Ovarium* 1-spermum. *Stigma* 1. *Utriculus* hinc longitudinaliter dehiscens. (*R. Brown.*)

1. *Cyperoides.* New Holland.

" Affinitate proxima *Devauxiæ,*" says Mr Brown, " diversa pistillo simplici, spica disticha et gluma univalvi interiori." *Prodromus,* p. 251.

ORDER II. DIGYNIA.

III. JARAVA. *Cal.* Gluma 2-valvis, 1-flora. *Cor.* gluma 1-valvis, papposa, aristata. (*Fl. Peruv.*)

1. *Usitata.* Peruvian Alps. Perhaps a species of ALOPECURUS. See *Flor. Peruv.* i. p. 5.

ORDER III. POLYGYNIA.

IV. DEVAUXIA. (The CENTROLEPIS of Labillardiere.) *Spatha* bivalvis, floribus indefinitis. Gluma bivalvis. *Anthera* simplex. *Ovaria* plura (3—12) axi communi adnata, monosperma. *Styli* totidem, distincti, vel basi connati. *Utriculi* extus longitudinaliter dehiscentes. (*R. Brown.*)

1. *Pulvinata.* Van Diemen's Island.
2. *Patersoni.* New South Wales.
3. *Strigosa.* New Holland.
4. *Tenuior.* Van Diemen's Island.
5. *Billardieri.* N. Holland, and V. Diem. Isl.
6. *Exserta.* New Holland.
7. *Banksii.* New Holland.
8. *Pusilla.* New Holland.
9. *Aristata.* New Holland.

Species 5 is the *Centrolepis Fascicularis* of Labillardiere, *Nov. Holl.* i. p. 7. See Brown's *Prodromus,* p. 252.

V. ALEPYRUM. *Spathæ* bivalvis, uni-v. pauciflora. *Glumæ* nullæ. *Anthera* simplex. *Ovaria* plura, (6—18,) axi communi adnata, unilateralia. *Styli* totidem, basi connati. *Utriculi* hinc longitudinaliter dehiscentes. (*R. Brown.*)

1. *Polygynum.* New Holland.
2. *Pumilio.* New Holland.
3. *Muticum.* New Holland.

This genus has the appearance and the structure of *Devauxia.* See *Prodromus,* p. 253.

REMARKS ON THE CLASS MONANDRIA.

The genus GLOBBA, which has 2 stamina, is given under the present class in the last edition of the *Hortus Kewensis,* and in Persoon's *Synopsis,* i. p. 3. Following Willdenow, we have given it in Class II., though it certainly belongs to Class I. Its generic character in the *Hortus Kewensis,* is, " *Anthera* duplex. *Filam.* lineare, incurvatum, longissimum, appendiculatum. *Stylus* laxus, filiformis, in medio antheræ receptus. *Stigma* incrassatum. *Nectarium* utrinque bifidum."

Dr Smith has also given the genus CHARA under the present class, with the following generic character: " *Cal.* 0. *Cor.* 0. *Anth.* sessilis. *Styl.* 0. *Sem.* plura;" but we have, after Wildenow, given it under MONŒCIA *Monandria.* See *English Botany,* 334, and *Flor. Brit.* i. p. 4.

The genus ZOSTERA has likewise been given under the present class; but we have, after Willdenow, given it under MONŒCIA *Monandria.*

A new arrangement of the Scitamineæ, or spicy plants, has been proposed by the celebrated Mr Roscoe. This arrangement, which will be understood from the following Synoptical Table, produces a separation between the *Scitamineæ* or true aromatic plants, and the others which have neither their peculiar construction nor their inherent qualities.

Anthera simplex, stylus erectus, liber. CANNÆ.	Anthera filamento petaloideo adnata.	Stylus claviformis; stigma obtusum		CANNA.
		Stylus petaliformis; stigma trigonum		MARANTA.
	Anthera filamento proprio innixa.	Stylus depressus; stigma depressum, perforatum, ringens		THALIA.
		Filamentum subulatum, breve; stylus crassus, versus antheram inclinatus		PHRYNIUM.
		Stylus crassus, depressus, longitudinaliter fissus; stigma dehiscens		MYROSMA.
Anthera duplex, stylus in sulco antheræ receptus. SCITAMINEÆ.	Filamentum extra antheram non elongatum.	ad basim lanùginosum; stylus crassus erectus; stigma capitatum		PHYLIDRUM.
		geniculatum; stylus filamento antherifero duplo longior		HEDYCHIUM.
		Stylus erectus, longitudine filamento antheriferi		ALPINIA.
	Filamentum extra antheram elongatum.	Apice subulato, sulcato		ZINZIBER.
		Apice ovato, plano		COSTUS.
		Apice bilobato		KÆMPFERIA.
		Apice trilobato.	Filamentum ad basim appendiculatum	AMOMUM.
			Lacinia media antherifera	CURCUMA.
		Apice appendiculato; stylus longissimus		GLOBBA.

See Roscoe, *Linn. Trans.* vol. ix. p. 337; and Brown's *Prodromus,* p. 307, 308.

Persoon is of opinion that the genera of this class, from No. 1 to No. 15, including *Globba,* ought to be referred to the Class GYNANDRIA. See *Synopsis,* p. 1.

On account of having a similar number of stamina, the following species, belonging to other genera, might still belong to this class.

MONOGYNIA.

Mangifera *Indica;* Tradescantia *Monandra;* Valeriana *rubra, angustifolia, calcitrapa.* Alchemilla *aphanes* (*Aphanes arvensis* of Persoon,) *monandra;* Polycnemum *monandrum,* and several species of Scirpus and Cyperus.

DIGYNIA.

Leersia *monandra.* Rotboella *monandra.* (Cavanilles.) Uniola *latifolia* et *gracilis.* (Michaux.)

CLASS II. DIANDRIA.

ORDER I. MONOGYNIA.

SECT. I. *Flowers Inferior, Monopetalous and Regular.*

36. **OLEA.** *Cor.* 4-fida. laciniis subovatis. *Drupa* monosperma.
1. *Europæa.* South of Europe and Africa. *Shrub.*
2. *Capensis.* Cape of Good Hope. *Shrub.*
3. *Americana.* Carolina. *Shrub.*
4. *Cernua.* Madagascar. *Shrub.*
5. *Apetala.* New Zealand. *Shrub.*
6. *Excelsa.* Madeira. *Shrub.*
7. *Fragrans.* Cochinchina, China, and Japan. *Shrub.*
*8. *Emarginata.* Madagascar. Tree 40 feet high.
*9. *Chrysophylla.* Isle of France. *Shrub.*
*10. *Lancea.* Isle of France. *Shrub.*
*11. *Paniculata.* New Holland. *Shrub.*

Species 8, 9, 10, see Lamarck, *Illustrat.* p. 27, 29. Species 11, see Brown's *Prodromus*, p. 523. OLEA differs from PHILLYREA only in the texture of the *Putamen.*

37. **CHIONANTHUS.** *Cor.* 4-fida: laciniis longissimis. *Drupæ* nucleus striatus.
1. *Virginica.* America. *Shrub.*
2. *Cotinifolia.* Ceylon. *Shrub.*
3. *Compacta.* Caribbee Islands. *Shrub.*
4. *Zeylanica.* Ceylon. *Shrub.*
5. *Incrassata.* Guiana and Jamaica. *Shrub.*
*6. *Guianensis.* Guiana. *Shrub.*
*7. *Axillaris.* New Holland. *Shrub.*

Species 6, see Aublet, *Hist. des Plantes de la Guiane*, &c. p. 8. Species 7, see Brown's *Prod.* p. 523. See LINOCIERA. This genus differs from OLEA only in the figure of the laciniæ of the corolla.

35. **PHILLYREA.** *Cor.* 4-fida. *Bacca* 1-sperma.
1. *Media.* Southern mountains of Europe. *Shrub.*
2. *Angustifolia.* Italy and Spain. *Shrub.*
3. *Latifolia.* South of Europe. *Shrub.*

‡ 34. **LIGUSTRUM.** *Cor.* 4-fida, *Bacca*, 4-sperma.
1. *Vulgare.* Europe. *Shrub.*
2. *Japonicum.* Japan. *Shrub.*
*3. *Lucidum.* China. *Shrub.*

40. **PIMELEA.** *Cal.* nullus. *Cor.* 4-fida. *Stam.* fauci inserta. *Nux* corticata unilocularis. *All Shrubs.*
1. *Linifolia.* New South Wales.
2. *Gnidia.* New Zealand.
3. *Pilosa.* New Zealand.
4. *Prostrata.* New Zealand.
*5. *Cornucopiæ.*
*6. *Punicea.*
*7. *Collina.*
*8. *Cernua.*
*9. *Brevifolia.*
*10. *Paludosa.*
*11. *Angustifolia.*
*12. *Glauca.*
*13. *Ligustrina.*
*14. *Decussata.*
*15. *Rosea.*
*16. *Hispida.*
*17. *Lanata.*
*18. *Pauciflora.*
*19. *Serpylliflora.*
*20. *Sylvestris.*
*21. *Humilis.*
*22. *Flava.*
*23. *Microcephala.*
*24. *Clavata.*
*25. *Imbricata.*
*26. *Longiflora.*
*27. *Octaphylla.*
*28. *Sericea.*
*29. *Cinerea.*
*30. *Drupacea.*
*31. *Incana.*
*32. *Nivea.*
*33. *Spicata.*
*34. *Argentea.*
*35. *Curviflora.*
*36. *Gracilis.*
*37. *Latifolia.*

The last 32 species are given by Mr R. Brown, who found most of them in New Holland and Van Diemen's Island. The following is his generic character of PIMELEA—, *Perianthium* infundibuliforme, limbo 4-fido, fauce esquamata. *Stam.* fauci inserta, laciniis exterioribus opposita. *Stylus* lateralis. *Stigma* capitatum. *Nux* corticata, raro baccata. See *Prodromus*, p. 359.

38. **SYRINGA.** *Cor.* 4-fida. *Capsula* bilocularis.
1. *Vulgaris.* Persia. *Shrub.*
2. *Chinensis*, or *Dubia.* China. *Shrub.*
3. *Persica.* Persia. *Shrub.*
4. *Suspensa.* Japan. *Shrub.*

41. **ERANTHEMUM.** *Cor.* 5-fida: tubo filiformi, *Antheræ* extra tubum. *Stigma* simplex. *Fructus.*
1. *Capense.* Æthiopia. *Shrub.*
2. *Angustifolium.* Æthiopia. *Shrub.*
3. *Parvifolium.* Cape of Good Hope. *Shrub.*
4. *Salsaloides.* Teneriffe, near St Cruz. *Shrub.*
*5. *Variabile.* New Holland. *Shrub.*

See Brown's *Prodromus*, p. 477.

31. **NYCTANTHES.** *Cor.* hypocrateriformis: *laciniæ* truncatæ. *Caps.* bilocularis, marginata. *Semina* solitaria.
1. *Arbor tristis.* East Indies. *Shrub.*

32. **JASMINUM.** *Cor.* hypocrateriformis 5-8-fida. *Bacca* dicocca. *Semina* solitaria arillata.
1. *Sambac.* India. *Shrub.*
2. *Undulatum.* Malabar. *Shrub.*
3. *Hirsutum.* India and China. *Shrub.*
4. *Angustifolium.* In the sandy parts of Malabar. *Shrub.*
5. *Vimineum.* Java and Malabar. *Shrub.*
6. *Pubescens.* Calcutta. *Shrub.*
7. *Scandens.* Bengal, where it climbs to the tops of trees. *Shrub.*
8. *Elongatum.* East Indies. *Shrub.*
9. *Glaucum.* Cape of Good Hope. *Shrub.*
10. *Trinerve.* Java. *Shrub.*
11. *Simplicifolium.* Friendly Isles. *Shrub.*
12. *Angulare.* Cape of Good Hope. *Shrub.*
13. *Auriculatum.* In the gardens of Malabar. *Shrub.*
14. *Flexile.* East Indies. *Shrub.*
15. *Didymum.* Society Isles. *Shrub.*
16. *Azoricum.* Azores Isles. *Shrub.*
17. *Fruticans.* South of Europe and the Levant, and all eastern countries. *Shrub.*
18. *Humile.* *Shrub.*

Class II.
Diandria.

19. *Odoratissimum*. Madeira. *Shrub.*
20. *Officinale*. India and Switzerland. *Shrub.*
21. *Grandiflorum*. India. *Shrub.*
* 22. *Gracile*. Norfolk Island and New Hol. *Shrub.*
* 23. *Acuminatum*. Java and New Hol. *Shrub.*
* 24. *Lanceolatum*. Peru. *Shrub.*
* 25. *Molle*. * 27. *Lineare.*
* 26. *Æmulum*. * 28. *Divaricatum.*

Species 22—28, see Persoon's *Synopsis*, vol. i. p. 7, and Brown's *Prodromus*, p. 521.

33. Galipea. *Cal.* 4-5-gonus: 4-5-dentatus. *Cor.* hypocraterif. profunde 4-5-partita. *Stam.* 4: duo sterilia. *Pericarp.*
1. *Trifoliata*. On the rivers of Guiana. *Shrub.*

Sect. II. *Flowers Inferior, Monopetalous, and Irregular. Fruit Capsular.*

45. Pæderota. *Cor.* ringens. 4-fida fauce nuda. *Cal.* 5-partitus. *Caps.* bilocularis.
1. *Ageria*. Carniola, Italy. *Peren.*
2. *Bonarota*. In the Alps, Austria, Carniola, and Italy. *Peren.*
3. *Minima*. India. *Ann.*

46. Wulfenia. *Cor.* ringens, labio superiore brevi integro; inferiore 3-partito, fauce barbata. *Cal.* 5-partitus. *Caps.* 2-locul.
1. *Carinthiaca*. Top of the Alps, and in Carinthia. *Peren.*

‡ 44. Veronica. *Cor.* limbo 4-partito: lacinia infima angustiore; *Caps.* bilocularis.
1. *Sibirica*. Siberia. *Peren.*
2. *Virginica*. Virginia and Japan. *Peren.*
3. *Spuria*. South of Europe, Siberia, and Thuringia. *Peren.*
4. *Maritima*. *Shrub.*
5. *Longifolia*. Tartary, Austria, Sweden. *Peren.*
6. *Incana*. Ukraine, Samara. *Peren.*
7. *Spicata*. Low parts of Europe. *Peren.*
8. *Hybrida*. Europe (seldom), Wales. *Peren.*
9. *Pinnata*. Siberia. *Peren.*
10. *Laciniata*. Siberia. *Peren.*
11. *Incisa*. Siberia. *Peren.*
12. *Catarractæ*. New Zealand. *Shrub.*
13. *Elliptica*. New Zealand. *Shrub.*
14. *Macrocarpa*. New Zealand. *Shrub.*
15. *Salicifolia*. New Zealand. *Shrub.*
16. *Parviflora*. New Zealand. *Shrub.*
17. *Officinalis*. Barren woods of Europe. *Peren.*
18. *Allionii*. In the Alps of France, Italy, and Switzerland. *Shrub.*
19. *Decussata*. Faulkand Isles, and at the Straits of Magellan. *Shrub.*
20. *Aphylla*. In the mountains of the south of Europe, and in the north of Asia. *Shrub.*
21. *Billidioides*. Pyrenees and Switzerland. *Shrub.*
22. *Gentianoides*. Cappadocia and Armenia. *Peren.*
23. *Ponae*. Armenia, Pyrenean mountains, and Mount Baldo. *Peren.*
24. *Fruticulosa*. Mountains of Austria, Switzerland, and the Pyrenees.
25. *Saxatilis*. Swiss and Austrian Alps. *Shrub.*
26. *Alpina*. Mountains of Europe. *Peren.*
27. *Integrifolia*. Mountains of Saltzburgh and the Sudetes mountains. *Peren.*
28. *Serpyllifolia*. Europe and N. Amer. *Peren.*
29. *Tenella*. Pyrenees, and Piedmontese mountains. *Peren.*
30. *Baccabunga*. Europe. *Peren.*
31. *Anagallis*. In the East, and in Europe. *Ann.*
32. *Scutellata*. Europe, in places that have been under water. *Peren.*
33. *Teucrium*. Germany and Switzerland. *Peren.*
34. *Pilosa*. Austria. *Peren.*
35. *Prostrata*. Germany, Italy, and Switzerland. *Peren.*
36. *Pectinata*. About Constantinople. *Peren.*
37. *Montana*. Italy, Switzerland, and Germany. *Peren.*
38. *Chamædrys*. Europe. *Peren.*
39. *Orientalis*. In America, and the grassy parts of Spain. *Peren.*
40. *Multifida*. Siberia. *Peren.*
41. *Austriaca*. Austria, Silicia, and Carniola. *Peren.*
42. *Taurica*. Mount Taurus. *Peren.*
43. *Urticæfolia*. Switzerland, Bithynia, Austria, Bavaria. *Peren.*
44. *Latifolia*. Austria and Germany. *Peren.*
45. *Paniculata*. Tartary and Bohemia. *Peren.*
46. *Biloba*. Cappadocia. *Ann.*
47. *Agrestis*. Europe. *Ann.*
48. *Arvensis*. Europe. *Ann.*
49. *Hederifolia*. Europe. *Ann.*
50. *Filiformis*. East. *Ann.*
51. *Triphyllos*. Europe. *Ann.*
52. *Verna*. Germany, Sweden, and Spain. *Ann.*
53. *Digitata*. In the fields of Bohemia, Montpellier, and Spain. *Ann.*
54. *Acinifolia*. Europe. *Ann.*
55. *Peregrina*. Europe. *Ann.*
56. *Bellardi*. Piedmont. *Ann.*
57. *Marilandica*. Virginia.
* 58. *Procumbens*. Crimea. See Clarke's *Travels*, p. 746.
* 59. *Michauxii*. In the East.
* 60. *Nudicaulis*. Mountains of Europe.
* 61. *Pedunculata*. Woods near Kurt-butak, west of the Caspian. *Peren.*
* 62. *Atlantica*. Mount Atlas.
* 63. *Rotundifolia*. Bogs of Peru. *Ann.*
* 64. *Chamæpitys*. Europe. *Ann.*
* 65. *Præcox*. Europe. *Ann.*
* 66. *Formosa*. * 70. *Calycina.*
* 67. *Labiata*. * 71. *Distans.*
* 68. *Perfoliata*. * 72. *Arguta.*
* 69. *Gracilis*. * 73. *Plebeia.*

See Persoon's *Synopsis*, vol. i. p. 10. for an account of the Sp. from 59 to 65 inclusive; and Brown's *Prodromus*, p. 434, for the Sp. from 66 to 73, all of which are from New Holland and Van Diemen's Island. See also H. A. Schrader, *Commentatio* super *Veronicis Spicatis Linnæi*. Gottingæ, 1803, 8vo.

49. Gratiola. *Cor.* irregularis, resupinata. *Stam.* 2 sterilia. *Caps.* 2-locularis. *Cal.* 7-phyllus: 2 exterioribus patulis.

Class I
Diandri

Class II. Diandria.

1. *Officinalis*. Portugal, France, and the south of Europe. *Peren.*
2. *Monnierra*. Antilles. *Peren.*
3. *Repens*. Jamaica.
4. *Rotundifolia*. Sandy parts of Malabar.
5. *Lucida*. Malabar, Amboyna, and China, in moist places.
6. *Veronicifolia*. Wet soils of India. *Ann.*
7. *Hyssopioides*. Tranquebar. *Ann.*
8. *Lobelioides*. India. *Ann.*
9. *Trifida*. Sandy parts of Malabar. *Ann.*
10. *Virginica*. Wet soils of Virginia.
11. *Peruviana*. Peru.
12. *Grandiflora*. Tranquebar, Madras, Siam, Malacca, in wet rich soils.
13. *Oppositifolia*. Tranquebar.
14. *Pusilla*. India. *Ann.*
* 15. *Quadridentata*. Lower Carolina.
* 16. *Anagallidea*. Wet parts of Carolina.
* 17. *Pilosa*. Wet parts of Carolina.
* 18. *Aromatica*. Malabar.
* 19. *Latifolia*. N. Holland and Van Diem. Isl.
* 20. *Pubescens*. N. Holland and Van Diem. Isl.
* 21. *Pedunculata*. New Holland.

50. SCHWENKIA. *Cor.* subæqualis, fauce plicata glandulosa. *Stam.* 3 sterilia. *Caps.* bilocularis: polysperma.

1. *Americana*. Berbice in Guiana. *Bien.*

48. JUSTICIA. *Cal.* simplex s. duplex. *Cor.* 1-petala irregularis. *Caps.* ungue elastico dissiliens; *dissepimentum* contrarium adnatum.

1. *Fastuosa*. Tranquebar. *Peren.*
2. *Forskælei*. Arabia Felix and India. *Peren.*
3. *Purpurea*. China.
4. *Verticillaris*. Cape of Good Hope.
5. *Aristata*. Cape of Good Hope.
6. *Chinensis*. China and Arabia. In watery places.
7. *Triflora*. Mountains of Arabia Felix.
8. *Serpens*. Mauritius.
9. *Sulcata*. Arabia Felix.
10. *Bicalyculata*. Grassy parts of Malabar and Arabia Felix. *Ann.*
11. *Bivalvis*. Arabia and India. *Shrub.*
12. *Falcata*. Mauritius. *Shrub.*
13. *Sexangularis*. Vera Cruz, Jamaica. *Ann.*
14. *Scorpioides*. Vera Cruz. *Shrub.*
15. *Gangetica*. India.
16. *Assurgens*. Jamaica, and Santa Cruz.
17. *Acaulis*. Tranquebar. *Peren.*
18. *Hispida*. Sierra Leone. *Shrub.*
19. *Ecbolium*. Arabia, Malabar, Ceylon. *Peren.*
20. *Tetragona*. Cayenne. *Shrub.*
21. *Coccinea*. Cayenne. *Shrub.*
22. *Pulcherrima*. Warm parts of America. *Shrub.*
23. *Carthagenensis*. Carthagena, Martinique, Java.
24. *Hirsuta*. Java.
25. *Sphærosperma*. Caribbee Islands.
26. *Gendarussa*. Ceylon, Java, Malabar. *Shrub.*
27. *Procumbens*. Ceylon. *Peren.*
28. *Diffusa*. India. *Peren.*
29. *Echioides*. Malabar, Ceylon. *Peren.*
30. *Longifolia*. Island of Mahé.
31. *Latifolia*. East Indies. *Shrub.*
32. *Picta*. Asia. *Shrub.*
33. *Nitida*. Martinique, Santa Cruz, and Guadaloupe. *Shrub.*
34. *Variegata*. In the woods of Guiana. *Shrub.*
35. *Stricta*. Malabar.
36. *Paniculata*. East Indies.
37. *Nutans*. Java.
38. *Nasuta*. India. *Shrub.*
39. *Scandens*. Malabar. *Shrub.*
40. *Ciliaris*. *Ann.*
41. *Secunda*. Island of Trinidad.
42. *Debilis*. Arabia Felix. *Shrub.*
43. *Violacea*. Arabia Felix. *Shrub.*
44. *Bracteolata*. Carracas in America. *Shrub.*
45. *Rohrii*. Cayenne.
46. *Polystachya*. Cayenne.
47. *Retusa*. Santa Cruz.
48. *Flava*. Arabia Felix. *Shrub.*
49. *Americana*. Virginia and Florida. *Shrub.*
50. *Punctata*. Arabia Felix.
51. *Eustachiana*. Island of St Eustachio. *Shrub.*
52. *Caracasana*. Caraccas in America. *Shrub.*
53. *Pectoralis*. St Domingo and Martinique. *Peren.*
54. *Comata*. Moist and watery parts of Jamaica. *Peren.*
55. *Undulata*. Java and Malabar.
56. *Frondosa*. Otaheite.
57. *Pubescens*. New Caledonia. *Shrub.*
58. *Lævigata*. Java. *Shrub.*
59. *Cuspidata*. Arabia Felix.
60. *Lithospermifolia*. *Peren.*
61. *Biflora*. East Indies. *Shrub.*
62. *Sessilis*. Island of St Eustachio. *Shrub.*
63. *Adhatoda*. Ceylon. *Shrub.*
64. *Betonica*. India. *Shrub.*
65. *Repens*. Ceylon. *Peren.*
66. *Sanguinolenta*. Ceylon.
67. *Peruviana*. Lima. *Peren.*
68. *Crinita*. Japan. *Ann.*
69. *Trisulca*. Arabia Felix. *Shrub.*
70. *Hyssopifolia*. Canaries. *Shrub.*
71. *Periplocifolia*. Caraccas.
72. *Orchioides*. Cape of Good Hope. *Shrub.*
73. *Madurensis*. Madeira. *Shrub.*
74. *Cuneata*. Cape of Good Hope. *Shrub.*
75. *Tranquebariensis*. Tranquebar. *Shrub.*
76. *Odora*. Arabia Felix. *Shrub.*
77. *Infundibuliformis*. India. *Shrub.*
78. *Sinuata*. Island of Tanna. *Shrub.*
79. *Vincoides*. Madagascar. *Shrub.*
80. *Spinosa*. South America. *Shrub.*
81. *Repanda*. Island of Tanna. *Shrub.*
82. *Armata*. Jamaica. *Shrub.*
83. *Acicularis*. Jamaica. *Shrub.*
84. *Parviflora*. Calcutta. *Peren.*
85. *Nemorosa*. Jamaica and Hispaniola. *Peren.*
86. *Japonica*. Japan.
87. *Lancea*. Japan. *Ann.*
88. *Reptans*. St Domingo. *Ann.*
89. *Humifusa*. Jamaica. *Ann.*
* 90. *Quadrifida*. Mexico. *Shrub.*
* 91. *Nervosa*. East Indies. *Shrub.*
* 92. *Malabarica*. Malabar and Arabia.
* 93. *Humilis*. Carolina and Florida.
* 94. *Lineata*. Cuchero in Peru.

Class II. Diandria.

*95. _Rubra._ St Martha. _Shrub._
*96. _Pedunculata._ Banks of Ohio, Mississippi.
*97. _Pauciflora._ Island St Cruz.
*98. _Ryani._ Montferrat.
*99. _Microphylla._ Island St Cruz.
*100. _Spicata._ _Shrub._
*101. _Mucronata._
*102. _Longistaminea._
*103. _Sericea._
*104. _Racemosa._ _Peren._
*105. _Tenuiflora._ _Peren._
*106. _Multiflora._ _Ann._
*107. _Repens._
*108. _Acuminata._
*109. _Cuspidata._
*110. _Hirsuta._
*111. _Secundiflora._
*112. _Ciliata._
*113. _Appendiculata._
*114. _Juncea._ New Holland.
*115. _Media._ New Holland.
*116. _Adscendens._ New Holland.
*117. _Canescens._
*118. _Origanoides._
*119. _Nummulariæfolia._

The species from 100 to 113 are all from Peru. See _Flor. Peruv._ For species 114 to 116, see Brown's _Prodromus_, p. 476.; and for species 117 to 119, see Vahl, _Enumeratio._ See also the new genera HYPOESTES and NELSONIA.

47. CYRTANDRA. _Cor._ 5-fida irregularis. _Cal._ 5-dentatus subbilabiatus. _Stam._ 4, bina sterilia. _Bacca_ bilocularis.
1. _Biflora._ Island of Otaheite. _Shrub._
2. _Cymosa._ Island of Tanna.

‡ 53. PINGUICULA. _Cor._ ringens, calcarata. _Cal._ bilabiatus, 5-fidus. _Caps._ 1-locularis.
1. _Lusitanica._ Portugal and Britain. _Peren._
2. _Vulgaris._ Wet parts of Europe. _Peren._
3. _Grandiflora._ Southern mountains of France. _Peren._
4. _Alpina._ Mountains of Lapland, Swisserland, and Austria. _Peren._
5. _Villosa._ Lapland and Siberia. _Peren._
*6. _Elatior._ Georgia and Carolina.
*7. _Campanulata._ Carolina.
*8. _Lutea._ Carolina.
*9. _Alpestris._ Mountains of Salzburg.
*10. _Involuta._ Peru.
*11. _Acutifolia._ Lake Mistassins, N. America.
*12. _Pumila._ Georgia.

51. CALCEOLARIA. _Cor._ ringens, inflata. _Caps._ 2-locularis, bivalvis. _Cal._ 4-partitus æqualis.
1. _Pinnata._ Peru, in wet places. _Ann._
2. _Integrifolia_, or _Salviæfolia._ Peru.
3. _Ovata._ Peru. _Ann._
4. _Perfoliata._ New Granada, Peru.
5. _Crenata._ Peru.
6. _Rosmarinifolia._ Peru.
7. _Fothergillii._ Falkland's Islands. _Bien._
8. _Plantaginea._ South America, at the Straits of Magellan. _Peren._
9. _Nana._ Straits of Magellan. _Peren._
*10. _Tripartita._ Peru.
*11. _Lobata._ Peru.
*12. _Tomentosa._ Peru.
*13. _Corymbosa._ Peru.
*14. _Paralia._ Paral.
*15. _Verticillata._ _Per._
*16. _Bicolor._ _Peren._
*17. _Multiflora._ _Peren._
*18. _Gemelliflora._
*19. _Terniflora._
*20. _Angustiflora._ _Per._
*21. _Trifida._ _Peren._
*22. _Virgata._ _Peren._
*23. _Glauca._
*24. _Uniflora._
*25. _Biflora._
*26. _Polyrhiza._
*27. _Cana._
*28. _Racemosa._
*29. _Heterophylla._ _An._
*30. _Cuneiformis._ _Per._
*31. _Montana._
*32. _Flexuosa._ _Shrub._
*33. _Inflexa._ _Peren._
*34. _Involuta._ _Peren._
*35. _Bicrenata._
*36. _Anomala._
*37. _Oblonga._ _Ann._
*38. _Punicea._
*39. _Viscosa._
*40. _Dentata._ _Peren._
*41. _Deflexa._ _Peren._
*42. _Salicifolia._ _Per._
*43. _Sessilis._
*44. _Lanceolata._
*45. _Pulverulenta._ _Per._
*46. _Scabra._ _Peren._
*47. _Ferruginea._
*48. _Alternifolia._
*49. _Pinifolia._
*50. _Alba._ _Peren._

The last 40 species are all from South America. Some of them seem only to be varieties. See _Flor. Peruv._ i. p. 143.; and Cavanilles, _Icones_, &c.

52. BAEA. _Cor._ ringens: tubo brevissimo, labio superiore plano tridentato, inferiore plano bilobo. _Caps._ 2-locul. 4-valvis contorta. _Cal._ 5-partitus æqualis.
1. _Magellanica._ Humid rocks at the Straits of Magellan. _Peren._
*2. _Plantaginea._ Peru, and the Straits of Magellan. _Ann._
*3. _Punctata._ Peru and Chili. _Peren._
*4. _Ovata._ Near Guyaquil.
*5. _Violacea._ Talcahuano, near the island Quiriquina.
*6. _Triandria._ Talcahuano.

See _Flor. Peruv._ i. p. 13.; and Cavanilles, _Icones_, &c. v. p. 30.

54. UTRICULARIA. _Cor._ ringens, calcarata. _Cal._ 2-phyllus, æqualis. _Caps._ unilocularis.
1. _Alpina_, or _Grandiflora._ Mountains in the island of St Martins'.
2. _Foliosa._ South America.
3. _Vulgaris._ Ditches in Europe. _Peren._
4. _Minor._ Ditches in Europe (seldom). _Peren._
5. _Obtusa._ Stagnant waters in Jamaica.
6. _Subulata._ Virginia.
7. _Gibba._ Virginia.
8. _Bifida._ China.
9. _Capillacea._ Springs in India. _Peren._
10. _Cœrulea._ Ceylon.
11. _Stellaris._ India.
*12. _Unifolia._ Peru.
*13. _Furcata._ Do.
*14. _Cornuta._ Canada.
*15. _Setacea._ Lower Carolina.
*16. _Hispida._ Cayenne.
*17. _Intermedia._
*18. _Ceratophylla._ Carolina.
*19. _Australis._
*20. _Exoleta._
*21. _Volubilis._
*22. _Speciosa._
*23. _Oppositiflora._
*24. _Uniflora._
*25. _Baueri._
*26. _Lateriflora._
*27. _Parviflora._
*28. _Simplex._
*29. _Violacea._
*30. _Menziesii._
*31. _Albiflora._
*32. _Compressa._
*33. _Cyanea._
*34. _Graminifolia._
*35. _Biloba._
*36. _Limosa._
*37. _Pygmæa._
*38. _Tenella._
*39. _Barbata._
*40. _Flava._
*41. _Chrysantha._
*42. _Multifida._

All the species from 19 to 42 are from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 430.

55. Ghinia. *Cal.* quinquearistatus. *Cor.* ringens, limbo quinquefido. *Nux.* carnosa 4-locularis. *Sem.* solitaria.
1. *Spinosa.* Curacoa, Antigua, and Caribbee Isles. *Ann.*
2. *Mutica.* Guiana and Cayenne. *Ann.*

56. Sciuris. *Cor.* inæqualis: labio superiore trifido; inferiore bifido breviore. *Stam.* 5 quorum 3 castrata. *Caps.* 5 coalitæ 1-loculares 1-spermæ.
1. *Aromatica.* Woods of Guiana. *Shrub.*

SECT. III. *Flowers Inferior, Monopetalous, and Irregular. Seeds Naked.*

‡ 56. Verbena. *Cor.* infundibulif. subæqualis, curva. *Calycis* unico dente truncato. *Semina* 2 seu 4, nuda. (*Stam.* 2 seu 4.)
1. *Orubica.* Oruba island in North America.
2. *Indica.* Ceylon. *Ann.*
3. *Jamaicensis.* Jamaica and Caribbee isles. *Peren.*
4. *Mutabilis.* Torrid Zone America.
5. *Prismatica.* Jamaica. *Ann.*
6. *Mexicana.* Mexico.
7. *Stoechadifolia.* America and Jamaica.
8. *Globiflora.* Warm parts of America. *Peren.*
9. *Javanica.* Java.
10. *Nodiflora.* Naples, Sicily, East Indies, Isle of Tanna, the Caribbees, and Virginia. *Per.*
11. *Bonariensis,* Bonaria. *Peren.*
12. *Hastata.* Moist parts of Canada. *Peren.*
13. *Triphylla.* Chili. *Shrub.*
14. *Lappulacea.* Rough and stony places in the Caribbee Islands.
15. *Forskælei.* Arabia Felix.
16. *Caroliniana.* North America. *Peren.*
17. *Urticifolia.* Virginia, and the dry parts of Canada. *Peren.*
18. *Aubletia.* Virginia. *Ann.*
19. *Spuria.* Canada and Virginia.
20. *Officinalis.* Europe. *Ann.*
21. *Supina.* Spain. *Ann.*

Sp. 1—7, 2 Stam. Sp. 7—21, 4 Stam.

‡ 57. Lycopus. *Cor.* 4-fida: lacinia unica emarginata. *Stam.* distantia. *Sem.* 4-retusa.
1. *Europæus,* or *Vulgaris.* Europe. *Peren.*
2. *Exaltatus.* Italy. *Peren.*
3. *Virginicus.* Virginia. *Peren.*
* 4. *Uniflorus.* Lake St John and Mistassins.
* 5. *Australis.* New Holland and Van Diemen's Island.

See Brown's *Prodr.* p. 500; and Michaux, *Flor. Carol.*

58. Amethystea. *Cor.* 5-fida; lacinia infima patentiore. *Stam.* approximata. *Cal.* subcampanulatus. *Sem.* 4-gibba.
1. *Cærulea,* or *Corymbosa.* Mountainous parts of Siberia. *Ann.*

60. Ziziphora. *Cor.* ringens: labio superiore reflexo, integro. *Cal.* filiformis. *Sem.* 4.
1. *Capitata.* Syria, Armenia, and Siberia. *Ann.*
2. *Hispanica.* Spain. *Ann.*
3. *Tenuior.* Syria? *Ann.*
4. *Acinoides.* Siberia. *Ann.*
* 5. *Serpyllacea.* Mount Caucasus. *Bien.*
* 6. *Pouschkini.* Mount Caucasus. *Bien.*

Sp. 5, 6, see Sim's *Bot. Mag.* 1093.

61. Monarda. *Cor.* inæqualis: labio superiore lineari filamenta involvente. *Sem.* 4.
1. *Fistulosa.* Canada. *Peren.*
2. *Oblongata.* North America. *Peren.*
3. *Didyma.* Pennsylvania. *Peren.*
4. *Rugosa.* North America. *Peren.*
5. *Clinopodia.* Virginia. *Peren.*
6. *Punctata.* Virginia. *Bien.*
7. *Ciliata.* Virginia.
* 8. *Allophylla.* North America. (*Michaux.*)

62. Rosmarinus. *Cor.* inæqualis, labio superiore bipartito. *Fil.* longa, curva, simplicia cum dente.
1. *Officinalis.* France, Spain, Italy, Switzerland, the hills of the East, and mountains of Istria. *Shrub.*
2. *Chilensis.* Chili. *Shrub.* (*Molina.*)

‡ 63. Salvia. *Cor.* inæqualis. *Fil.* transverse pedicello affixa.
1. *Egyptiaca.* Egypt and Canary Isles. *Ann.*
2. *Dentata.* Cape of Good Hope. *Shrub.*
3. *Cretica.* Crete. *Peren.*
4. *Lyrata.* Virginia and Carolina. *Peren.*
5. *Leucantha.* Mexico. *Peren.*
6. *Habliziana.* Tauria. *Peren.*
7. *Officinalis.* South of Europe. *Shrub.*
8. *Grandiflora.* *Shrub.*
9. *Triloba.* Candia and Syria. *Shrub.*
10. *Pomifera.* Candia, Palestine, Syria. *Shrub.*
11. *Urticifolia.* Virginia and Florida. *Peren.*
12. *Occidentalis.* Caribbean Islands. *Peren.*
13. *Tiliæfolia.* Mexico. *Peren.*
14. *Serotina.* Chio? *Bien. Shrub.*
15. *Tenella.* The highest mountains in the south of Jamaica. *Ann.*
16. *Viridis.* Italy. *Ann.*
17. *Horminum.* Greece and Italy. *Ann.*
18. *Virgata.* Armenia. *Peren.*
19. *Sylvestris.* Lower Austria, Bohemia, and Germany. *Peren.*
20. *Nemorosa.* Austria and Tartary. *Peren.*
21. *Syriaca.* In the East and in Palestine. *Shrub.*
22. *Viscosa.* Italy. *Peren.*
23. *Hæmatodes.* Italy, Istria. *Peren.*
24. *Pratensis.* Europe. *Peren.*
25. *Bicolor.* Barbary, near Mascar and Tlemsen. *Peren.*
26. *Indica.* India. *Peren.*
27. *Dominica.* West Indies. *Peren.*
28. *Verbenaca.* Europe and East. *Peren.*
29. *Scabra.* Cape of Good Hope. *Shrub.*
30. *Runcinata.* Cape of Good Hope.
31. *Clandestina.* Italy and Africa. *Bien.*
32. *Austriaca.* Austria, Hungary, and Moldavia. *Peren.*
33. *Pyrenaica.* Pyrenees.
34. *Disermas.* Syria. *Peren.*
35. *Rugosa.* Cape of Good Hope. *Shrub.*
36. *Nubia.* Africa. *Peren.*
37. *Nilotica.* Egypt. *Peren.*

38. *Mexicana.* Moist parts of Mexico. *Shrub.*
39. *Amethystina.* New Granada. *Shrub.*
40. *Fulgens.* Mexico. *Peren.*
41. *Formosa.* Peru.
42. *Tubiflora.* Near Lima. *Shrub.*
43. *Longiflora,* or *Tubifera.* Mexico. *Peren.*
44. *Coccinea.* Florida. *Shrub.*
45. *Pseudococcinea.* Warm parts of America. *Shrub.*
46. *Hispanica.* Spain and Italy. *Ann.*
47. *Abyssinica.* Africa.
48. *Verticillata.* Germany, Austria, Switzerland, Italy, and Tartary. *Peren.*
49. *Napifolia.* Italy and France. *Peren.*
50. *Glutinosa.* Europe, muddy places. *Peren.*
51. *Barrelieri.* Spain. *Peren.*
52. *Canariensis.* Canary Islands. *Shrub.*
53. *Aurita.* Cape of Good Hope.
54. *Africana.* Cape of Good Hope, in clayey places. *Shrub.*
55. *Aurea.* Cape of G. Hope, near rivers. *Shrub.*
56. *Colorata.* Cape of Good Hope, on the sandy shores. *Shrub.*
57. *Paniculata.* Africa. *Shrub.*
58. *Acetabulosa.* In the East. *Shrub.*
59. *Spinosa.* Egypt. *Bien. Peren.*
60. *Tingitana.* North of Africa. *Shrub.*
61. *Sclarea.* Syria and Italy. *Bien.*
62. *Involucrata.* Mexico. Peren.
63. *Ceratophylla.* Persia. *Bien.*
64. *Æthiopis.* Illyria, Greece, Africa, Austria, and France. *Bien.*
65. *Phlomaides.* In the mountains about Siguenza in Spain.
66. *Argentea.* Candia. *Bien.*
67. *Vulnerariæfolia.* In the East. *Shrub.*
68. *Pinnata.* In the East and Candia. *Bien.*
69. *Incarnata.* In the East. *Peren.*
70. *Rosæfolia.* Armenia. *Peren.*
71. *Japonica.* Japan. *Ann.*
72. *Ceratophylloides.* Sicily and Egypt. *Bien.*
73. *Forskælei.* In the East. *Peren.*
74. *Nutans.* Hungary. *Peren.*
75. *Hastata.* In Reusse.
76. *Betonicæfolia.* In Reusse.

*77. *Interrupta.* Barbary. *Shrub.*
*78. *Revoluta.* Peru. *Shrub.*
*79. *Angustifolia.* New Spain. *Peren.*
*80. *Acuminata.* South Carolina. *Peren.*
*81. *Nivea.* Cape of Good Hope. *Shrub.*
*82. *Rigida.* Cape of Good Hope. *Shrub.*
*83. *Punctata.* Peru. *Shrub.*
*84. *Clusii.* Isles of the Archipelago.
*85. *Sypilea.* In the East. *Shrub.*
*86. *Polystachia.* Kingdom of Mexico. *Peren.*
*87. *Chamædryoides.* New Spain.
*88. *Procumbens.* Lima. *Peren.*
*89. *Rhombifolia.* Peru.
*90. *Papilionacea.* New Spain. *Peren.*
*91. *Acuminata.* Peru. *Peren.*
*92. *Nodosa.* Peru. *Shrub.*
*93. *Oppositiflora.* Peru. *Peren.*
*94. *Excisa.* Peru. *Shrub.*
*95. *Plumosa.* Peru. *Shrub.*
*96. *Integrifolia.* Peru. *Shrub.*
*97. *Racemosa.* Peru. *Shrub.*
*98. *Violacea.* Peru. *Ann.*
*99. *Prismatica.* Mexico.
*100. *Circinata.* Mexico. *Peren.*
*101. *Mitis.* Peru. *Peren.*
*102. *Triangularis.* Cape of Good Hope.
*103. *Deltoidea.* Mexico. *Peren.*
*104. *Sagittata.* Peru. Peren.
*105. *Cuspidata.* Peru.
*106. *Patens.* New Spain.
*107. *Compressa.* Bagdad. *Bien.*
*108. *Atlantica.* Mount Atlas. *Bien.*
*109. *Bicolor.* Tlemsen. *Bien.*
*110. *Algeriensis.* Algiers. *Ann.*
*111. *Crassifolia.*
*112. *Scabiosæ.* Peru. *Peren.*
*113. *Ceratophylloides.* Sicily and Egypt. *Bien.*
*114. *Plebeia.* New Holland.

See *Flor. Peruv.;* Cavanilles *Icones;* and Desfontaine *Flora Atlantica.*

59. CUNILA. *Cor.* ringens: labio superiore erecto plano. *Filamenta* castrata duo. *Semina* 4.
    1. *Fruticosa.* New Holland. *Shrub.*
    2. *Capitata.* Siberia.
    3. *Mariana.* Virginia. *Peren.*
    4. *Pulegioides.* Virginia, and dry parts of Canada. *Ann.*
    5. *Thymoides.* Montpellier, Levant. *Ann.*

64. COLLINSONIA. *Cor.* inæqualis: labio inferiore multifido capillari. *Sem.* 1. perfectum.
    1. *Canadensis.* Virginia, and the woods of Canada. *Peren.*
    2. *Scabriuscula,* or *Scabra.* East Florida. *Per.*

   *3. *Anisata.* South Carolina. *Peren.* (4. Stam.)
   *4. *Tuberosa.* Carolina. *Peren.* (*Michaux.*)

SECT. IV. *Flowers Inferior and Polypetalous.*

42. FONTANESIA. *Cor.* dipetala. *Cal.* 4 partitus inferus. *Caps.* membranacea non dehiscens 2-locularis; loculis monospermis.
    1. *Phillyræoides.* Syria, between Laodicea and Mount Cassium. *Shrub.*

68. LITHOPHILA. *Cal.* triphyllus. *Cor.* tripetala. *Nectar.* diphyllum. *Pericarp.* biloculare.
    1. *Muscoides.* Rocks of Navaza. (*Swartz.*)

69. LINOCIERA. *Cal.* 4-dentatus. *Cor.* 4-petala. *Anth.* petala 2 opposita basi connectentes. *Bacca* 2-locul. loculis 2 spermis.
    1. *Ligustrina.* Jamaica, Hispaniola. *Shrub.*

This species is given by Persoon under the genus CHIONANTHUS.

39. DIALIUM. *Cor.* 5-petala. *Cal.* nullus. *Stam.* ad latus superius.
    1. *Indum.* India. *Shrub.*
    2. *Guineense.* Guinea. *Shrub.*

SECT. V. *Flowers Superior.*

65. MORINA. *Cor.* inæqualis. *Cal.* fructus 1-phyllus, dentatus. *Cal.* floris bifidus. *Sem.* 1, sub calyce floris.
    1. *Persica.* Ispahan in Persia. *Peren.*

‡43. CIRCÆA. *Cor.* dipetala. *Cal.* 2-phyllus, superus. *Caps.* bilocularis non dehiscens; loculis monospermis.

1. *Lutetiana*. Europe and N. America. *Peren.*
2. *Alpina*. At the foot of mountains in the cold parts of Europe. *Peren.*

67. Globba. *Cor.* æqualis: trifida. *Cal.* superus, trifidus. *Caps.* trilocularis. *Sem.* plurima. *Stam.* 2.
1. *Marantina*. East Indies. *Peren.*
2. *Nutans*. East Indies.
3. *Japonica*. Japan. *Peren.*
4. *Uniformis*. East Indies. *Peren.*

See Class 1. p. 84.

Sect. VI. *Flowers without Petals.*

70. Ancistrum. *Cal.* 4-phyllus. *Cor.* 0. *Stigma* multipartitum. *Drupa* exsucca hispida 1-locul.
1. *Sanguisorbæ*. New Zealand. *Peren.*
2. *Lucidum*. Falkland Islands. *Peren.*
3. *Latebrosum*. Cape of Good Hope. *Peren.*
*4. *Repens*. Peru. *Shrub.* (*Ventenat.*)
*5. *Magellanicum*. Straits of Magellan.

This genus, given by Willdenow after Linnæus, has been placed under the genus Acæna, in the second edition of the *Hortus Kewensis*. See the new Genera at the end of this Class.

71. Aruna. *Cal.* 5-partitus: laciniis reflexis. *Corolla* nulla. *Bacca* unilocularis 1-vel 2-sperma.
1. *Divaricata*, or *Guianensis*. Woods of Guiana. *Shrub.*

Order II. Digynia.

‡ 72. Anthoxanthum. *Cal.* Gluma bivalvis, uniflora. *Cor.* Gluma bivalvis, acuminata aristata. *Sem.* 1.
1. *Odoratum*. Europe. *Peren.*
2. *Indicum*. India. See Perotis.
3. *Crinitum*. New Zealand. See Agrostis.
4. *Avenaceum*. Malabar.

74. Crypsis. *Cal.* Gluma bivalvis uniflora. *Cor.* Gluma bivalvis mutica.
1. *Aculeata*. In sandy moist places of the East, Siberia, Moldavia, Carniola, Italy, south of France, Spain, Barbary, and Sicily. *Ann.*
*2. *Schœnoides*. Italy, France, Spain, and Smyrna. *Bien.*

This genus is given in Class III. by Persoon, *Synopsis*, p. 79.

Order III. Trigynia.

74. Piper. *Cal.* 0. *Cor.* 0. *Bacca* monosperma.
1. *Nigrum*. India. *Shrub.*
2. *Betle*. India. *Shrub.*
3. *Cubiba*. Woods of Java, and in Guinea. *Shrub.*
4. *Clusiæfolium*. West Indies. *Shrub.*
5. *Capense*. Cape of Good Hope.
6. *Malamiris*. East and West Indies.
7. *Discolor*. Jamaica. *Shrub.*
8. *Medium*. *Shrub.*
9. *Amalago*. Mountains of Jamaica and Hispaniola. *Shrub.*
10. *Siriboa*. India. *Shrub.*
11. *Excelsum*. New Zealand. *Shrub.*
12. *Longum*. India. *Shrub.*
13. *Methysticum*. Society, Friendly, and Sandwich Islands. *Shrub.*
14. *Latifolium*. Society and Friendly Islands, and New Hebrides. *Shrub.*
15. *Decumanum*. Martinique and Caraccas. *Shrub.*
16. *Reticulatum*. Martinique, Brasil, and Hispaniola. *Shrub.*
17. *Aduncum*. Jamaica. *Shrub.*
18. *Macrophyllum*. Jamaica and Martinique. *Shrub.*
19. *Geniculatum*. Jamaica. *Shrub.*
20. *Verrucosum*. Jamaica and Guiana, &c. *Shrub.*
21. *Hispidum*. Jamaica. *Shrub.*
22. *Nitidum*. Jamaica. *Shrub.*
23. *Pellucidum*. Warm parts of America. *Ann.*
24. *Alpinum*. Jamaica. *Peren.*
25. *Hispidulum*. Jamaica and Martinique. *Ann.*
26. *Tenellum*. Jamaica. *Ann.*
27. *Acuminatum*. Warm parts of America. *Peren.*
28. *Blandum*. Caraccas. *Peren.*
29. *Amplexicaule*. West Indies. *Peren.*
30. *Pallidum*. Society Islands.
31. *Obtusifolium*. Warm parts of America.
32. *Retusum*. Cape of Good Hope.
33. *Glabellum*. Jamaica.
34. *Scandens*. Jamaica.
35. *Serpens*. Jamaica.
36. *Cordifolium*. Jamaica.
37. *Nummulariæfolium*. Jamaica.
38. *Rotundifolium*. Mountains of America.
39. *Maculosum*. St Domingo.
40. *Peltatum*. Jamaica and St Domingo. *Peren.*
41. *Subpeltatum*. Woody parts of Amboyna and Baleya. *Peren.*
42. *Distachyon*. Mountains of America. *Peren.*
43. *Umbellatum*. West Indies. *Shrub.*
44. *Trifolium*. America.
45. *Pereskiæfolium*. In the island of Venezula. *Peren.*
46. *Polystachion*. Jamaica. *Peren.*
47. *Quadrifolium*. In the highest woody mountains of South America.
48. *Verticillatum*. Jamaica. *Ann.*
49. *Stellatum*. Jamaica. *Peren.*
50. *Reflexum*. West Indies, Cape of Good Hope, and in the islands in the Pacific Ocean.
51. *Pulchellum*. Jamaica. *Peren.*
52. *Filiforme*. Jamaica, in the groves between high mountains.

*53. *Magnoliæfolium*. West Indies. *Peren.*
*54. *Quadrangulare*. Trinidad.
*55. *Bracteatum*. St Vincents.
*56. *Hernandifolium*. Caribbee Isles.

See Thompson, *Linn. Trans.* vol. ix. p. 206.

Class II. Diandria.

NEW GENERA.

Order I. Monogynia.

I. Acæna. *Cal.* 4-phyllus. *Cor.* 0. *Stigma* multipartitum. *Drupa* exsucca, hispida, 1-locularis.
1. *Ovalifolia*. Peru. *Peren.*
2. *Lævigata*. Straits of Magellan. *Peren.*
3, 4, 5. The same as the 3 species given under Ancistrum.

New Genera.

II. NOTELIA. *Pet.* 4, per paria ope staminum ad basin connexa. *Drupa.* (*Ventenat.*)
1. *Longifolia.* New South Wales. *Shrub.*
2. *Punctata.* New Holland.
3. *Ovata.* New South Wales.
4. *Ligustrina.* Van Diemen's Island. *Shrub.*
5. *Microcarpa.* New Holland.

See Ventenat, *Choix de Plantes*, Paris, 1803; and Brown's *Prodr.* p. 523.

III. CATALPA. *Cor.* 5-fida, irregularis. *Cal.* 2-partitus. *Stam.* 3 sterilia. *Caps.* 2-locularis. *Sem.* apice et basi membranaceo-papposa. (*Jussieu.*)
1. *Syringifolia.* North America. *Shrub.*
2. *Longissima.* West Indies. *Shrub.*

These two species are given by Willdenow, under the genus BIGNONIA, in the class Didynamia; but in the *Hortus Kewensis* they are given under this genus. See Sim's *Bot. Mag.* 1094.

IV. STACHYTARPHETA. *Cal.* tubulosus, 4-dentatus. *Cor.* hypocrateriformis, inæqualis, 5-fida, curva. *Stam.* 4: 2 sterilia. *Sem.* 2. (*Vahl* and *Jussieu.*)
1. *Indica.*
2. *Jamaicensis.*
2. *Orubica.*
4. *Mutabilis.*
5. *Prismatica.*

These species are given by Willdenow under the genus VERBENA. See Jussieu, *Annales du Museum*, i. p. 75. and Vahl, *Enumeratio Plantarum.* Havniæ, 1804, 1805.

V. ORNUS. *Cal.* 4-partitus. *Cor.* 4-partita: petalis longis ligulatis. *Filam.* longa. *Nux* alata. (*Cavanilles.*)
1. *Europæa.* Italy and Spain.

This is the FRAXINUS ORNUS of Willdenow, but it obviously differs from that genus. See Persoon's *Synopsis*, i. p. 9.

VI. COLUMELLIA. *Cal.* 4-partitus. *Cor.* rotata. *Caps.* didyma: valvulis duplicatis. (*Fl. Peruv.*)
1. *Arborescens.* Peru.
2. *Frutescens.* Peru.

See *Flora Peruv.* i. p. 28.; and Persoon's *Synopsis*, i. p. 13.

VII. SARMIENTA. *Cor.* urceolata. *Filam.* 3 sterilia. *Caps.* 1-locularis, circumscissa. (*Fl. Peruv.*)
1. *Scandens.* Peru. *Flora Peruv.* i. p. 8.

VIII. GLOBIFERA. *Cal.* 4-partitus. *Cor.* 4-partita, subbilabiata: lacinia superiore minore. *Filam.* incurva basi appendiculata. *Caps.* subglobosa polysperma. (*Persoon.*)
1. *Umbrosa.* Carolina and Georgia.

This is the *Micranthemum orbiculatum* of Michaux. *Flor. Bor. Amer.* i. p. 10. See Persoon's *Synopsis*, i. p. 15.

IX. ELYTRARIA. *Cal.* coriaceus, 4-partitus: lac. antica fissa. *Cor.* 5-fida: laciniis subæqualibus. *Filam.* 2 castrata. *Stigmata* ligulata. *Caps.* oblonga, 2-locularis, 2-valvis: valvis semiseptiferis. (*Scapus radicalis bracteatus.*) (*Michaux.*)
1. *Caroliniensis.* Carolina.
2. *Indica.* Tranquebar.
3. *Imbricata.*

Sp. 1. is the *Elytraria virgata* of Michaux. Sp. 2. is the *Justicia Acaulis* of *Linn.* See Persoon's *Synopsis*, i. p. 23.

X. SANCHEZIA. *Cal.* 5-partitus: laciniæ obtusæ. *Cor.* tubulosa, lacin. æquales. *Filam.* 2-castrata. *Anth.* calcaratæ, *Stigma* 2-fidum. *Caps.* oblonga, 2-locular, 2-valvis. (*Flor. involucrati.*) (*Fl. Peruv.*)
1. *Hirsuta.* Peru.
2. *Glabra.* Peru.

See *Flor. Peruv.* i. p. 7.

XI. MICROCARPÆA. *Cal.* tubulosus, 5-gonus, 5-fidus. *Cor.* bilabiata. *Stam.* 2 antherifera. *Caps.* bivalvis, dissepimento contrario, demum libero. (*R. Brown.*)
1. *Muscosa.* New Holland. (*Pæderota minima.*) See Brown's *Prodromus*, p. 435.

XII. HYPOESTES. *Cal.* 5-fidus, æqualis; *Involucro* 4-fido, trifloro (abortione sæpe unifloro) inclusus. *Cor.* bilabiata. *Antheræ* uniloculares! *Ovarii* loculi 2-spermi. *Dissepimentum* adnatum. *Semina* retinaculis subtensa. (*Solander.*)
1. *Floribunda.* New Holland.

Besides this species, the preceding genus comprehends the justicia *fastuosa*, *Forskalei*, *purpurea*, *aristata*, *verticillaris*, and *serpens*. See Brown's *Prodromus*, p. 474.

XIII. NELSONIA. *Cal.* inæqualis, 4-partitus. *Cor.* infundibul. limbo 5-fido, parum inæquali. *Stam.* 2. antherifera inclusa; *Antherarum* loculis insertione æqualibus, divaricatis: *Caps.* sessilis acumine elastico, *dissepimento* adnato, loculis polyspermis. *Semina* sine retinaculis. (*R. Brown.*)
1. *Campestris.* New Holland.
2. *Rotundifolia.* New Holland.

This genus perhaps comprehends also justicia *hirsuta*, *origanoides*, *canescens*, and *nummulariæfolia*, and some unpublished species of the East Indies and Equinoctial Africa. See Brown's *Prodromus*, p. 480.

XIV. OLIGARRHENA. *Cal.* 4-partitus, bibracteatus. *Cor.* 4-fida, æstivatione valvata, persistens. *Stam.* 2 inclusa. Ovarium 2-loculare. *Capsula*? bilocularis. (*R. Brown.*)
1. *Micrantha.* New Holland.

This genus resembles the genus OLEA in its artificial character, but differs from it wholly in its habit. See Brown's *Prodromus*, p. 549.

XV. MARGYROCARPUS. *Cal.* 4-5-part. *Cor.* 0. *Stigma* peltatum. *Drupa* 1-sperma. (*Fl. Peruv.*)
1. *Setosus.* Chili. *Shrub.* (*Flor. Peruv.*)

ORDER II. DIGYNIA.

XVI. PEPEROMA. *Cal.* 0. *Cor.* 0. *Stigma*: punct. 1–2, in apice germinis. (*Fl. Peruv.*)
1. *Scutellatum.*
2. *Umbilicatum.*
3. *Secundum.*
4. *Foliiflorum.*
5. *Chrystallinum.*
6. *Inæqualifolium.*
7. *Rhombeum.*
8. *Filiforme.*
9. *Concavum.*
10. *Tetragonum.*
11. *Septemnerve.*
12. *Pubescens.*
13. *Alatum.*
14. *Purpureum.*
15. *Pilosum.*
16. *Trinerve.*
17. *Obliquum.*
18. *Acuminatum.*
19. *Striatum.*
20. *Scandens.*
21. *Dependens.*
22. *Emarginatum.*
23. *Variegatum.*
24. *Monostachyum.*

Ruiz and Pavon, *Flor. Peruv.* p. 8. have constituted the preceding new genus out of several new species of *Piper* found in Peru. Persoon, however, is of opinion, that a farther examination of the species is necessary before this separation should be adopted. See *Synopsis*, i. p. 34.

REMARKS ON THE CLASS DIANDRIA.

Under this class Persoon has ranked the genus GUNNERA; but we have, after Willdenow, given it under GYNANDRIA.

The following plants, being diandrous, might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

MONOGYNIA.

Hemimeris *sabulosa, diffusa, montana.* Bignonia *catalpa, longissima.* Polycnenum *Sclerospermum.* Valeriana *cornucopiæ.* Boerhavia *erecta, hirsuta, scandens.* L. Commelina *polygama.* Roth. Callisia *umbellul.* Schoenus *Mariscus* L. Sc. *Cladium* Sw. *setaceus.* Sw. Kyllinga *pumila,* and several species of *Scirpus.*

DIGYNIA.

Holcus *odoratus,* Festuca *diandra,* Saccharum *cylindricum, Thunbergii.* Agrostis *diandra.* Bromus *rigidus, diandrus Rothii,* &c.

CLASS III. TRIANDRIA.

ORDER I. MONOGYNIA.

‡ 75. VALERIANA. *Cal.* 0. *Cor.* 1. petala, basi hinc gibba, supera. *Sem.* 1.

1. *Rubra.* France, Switzerland, Italy, and in the East. *Peren.*
2. *Angustifolia.* Mountains of France, Switzerland, and Italy. *Peren.*
3. *Calcitrapa.* Portugal, and the East. *Ann.*
4. *Dioica.* Europe, and boggy ground in the East. *Peren.*
5. *Capensis.* Cape of Good Hope.
6. *Officinalis.* Europe. *Peren.*
7. *Phu.* Alsace and Siberia. *Peren.*
8. *Tripteris.* Mountains of Switzerland, and Austria. *Peren.*
9. *Montana.* Mountains of Switzerland, Rhætia, Austria, and the Pyrenees. *Peren.*
10. *Celtica.* Mountains of Switzerland, Austria, and the Vallais. *Peren.*
11. *Tuberosa.* Dalmatia Sicily, and Provence. *Peren.*
12. *Saxatilis.* Stiria and Austria. *Ann.*
13. *Elongata.* Mountains of Schneeberg in Lower Austria. *Peren.*
14. *Pyrenaica.* Pyrenees? *Peren.*
15. *Scandens.* Cumana.
16. *Mixta.* Montpellier.
17. *Supina.* Mountains of Italy and Carinthia. *Peren.*
18. *Villosa.* Japan.
19. *Polystachya.* Watery places in Bonaria. *Peren.*
20. *Sibirica.* Fields of Siberia. *Ann.*
21. *Ruthenica.* Siberia. *Peren.*
22. *Carnosa.* South America, at the straits of Magellan. *Peren.*
23. *Cornucopiæ.* Armenia, Barbary, Sicily, and Spain. *Ann.*
24. *Echinata.* Italy, and in the shady parts of Montpellier. *Ann.*
25. *Olitoria.* In Europe, among the growing corns. *Ann.*
26. *Dentata.* Among the growing corns of Germany France, and Italy. *Ann.*
27. *Vesicaria.* Candia. *Ann.*
28. *Coronata.* Portugal. *Ann.*
29. *Discoidea.* Italy and Spain. *Ann.*
30. *Radiata.* North America. *Ann.*
31. *Pumila.* Montpellier. *Ann.*

* 32. *Pilosa.* Tarma in Peru. *Ann.*

* 33. *Connata.* Tarma in Peru.

* 34. *Brachiata.* High hills of Lima in Peru. *An.*

* 35. *Virgata.* Rugged parts of Canta in Peru. *Shrub.*

* 36. *Globifera.* Mountains of Canta and Tarma.

* 37. *Sanguisorbæ.* Cordilleras.

* 38. *Decussata.* Stony parts of Peru.

* 39. *Paniculata.* Boggy parts in Peru.

* 40. *Hyalinorhiza.* Chili.

* 41. *Chærophylla.* Hills of Lima and Chancay.

* 42. *Serrata.* Peru.

* 43. *Coarctata.* High grounds of Tarma.

See *Flor. Peruv.* i. 59. Cavanilles *Icones,* v. p. 34. Sp. 41. is the *Boerhavia Chærophylloides* of Willdenow.

84. MELOTHRIA. *Cal.* 5-fidus. *Cor.* campanulata, 1-petala. *Bacca* 3-locularis, polysperma.

1. *Pendula.* Canada, Virginia, and Jamaica. *An.*

‡ 92. CROCUS. *Cor.* 6-partita, æqualis. *Stigmata* convoluta.

1. *Sativus,* or *Officinalis.* In the East. *Peren.*
2. *Vernus.* In the Alps of Switzerland, the Pyrenees, Portugal, Thrace, and Carniola. *Per.*

* 3. *Versicolor.* *Peren.*

* 4. *Biflorus.* *Peren.*

* 5. *Susianus.* Turkey. *Peren.*

* 6. *Sulphureus.* *Peren.*

* 7. *Mæsiacus.* Turkey. *Peren.*

* 8. *Serotinus.* South of Europe. *Peren.*

* 9. *Nudiflorus.* England, Pyrenees, and France. *Peren.*

For an account of the last 7 new species, see Ker in the *Annals of Botany,* vol. i. p. 221.; and *Botanical Magazine.*

95. ANTHOLYZA. *Cor.* tubulosa, 6-fida inæqualis, recurvata. *Caps.* infera.

1. *Lucidor.* Cape of Good Hope. *Peren.*
2. *Æthiopica.* Cape of Good Hope. *Peren.*
3. *Nervosa.* Cape of Good Hope. *Peren.*
4. *Canonia.* Cape of Good Hope. *Peren.*

5. *Ringens.* Cape of Good Hope. *Peren.*
6. *Plicata.* Cape of Good Hope. *Peren.*
*7. *Abbreviata.* The *Gladiolus Abbreviatus.*

94. Gladiolus. *Cor.* 6-partita, tubulosa; ringens. *Stam.* adscendentia.

1. *Montanus,* or *Tabularis.* Table Mountain Cape of Good Hope. *Peren.*
2. *Parviflorus.* *Peren.*
3. *Flexuosus.* Cape of Good Hope. *Peren.*
4. *Recurvus.* Cape of Good Hope. *Peren.*
5. *Falcatus.* Cape of Good Hope. *Peren.*
6. *Biflorus.* Straits of Magellan. *Peren.*
7. *Tenellus.* Cape of Good Hope. *Peren.*
8. *Dichotomus.* *Peren.* (*Thunberg.*)
9. *Striatus,* or *Formosus.* Cape of Good Hope. *Peren.*
10. *Crispus.* Cape of Good Hope. *Peren.*
11. *Cuspidatus.* Cape of Good Hope. *Peren.*
12. *Tristis.* Cape of Good Hope. *Peren.*
13. *Albidus.* Cape of Good Hope. *Peren.*
14. *Hyalinus.* Cape of Good Hope. *Peren.*
15. *Gracilis.* Cape of Good Hope. *Peren.*
16. *Carinatus,* or *Punctatus.* Cape of Good Hope. *Peren.*
17. *Galeatus.* Cape of Good Hope. *Peren.*
18. *Imbricatus,* or *Rossicus.* Russia.
19. *Brevifolius.* Cape of Good Hope. *Peren.*
20. *Communis.* South of Europe. *Peren.*
21. *Carneus.* Cape of Good Hope. *Peren.*
22. *Hirsutus.* Cape of Good Hope. *Peren.*
23. *Watsonius.* Cape of Good Hope. *Peren.*
24. *Merianellus.* Cape of Good Hope, tops of mountains. *Peren.*
25. *Merianus.* Cape of Good Hope. *Peren.*
26. *Laccatus.* Cape of Good Hope. *Peren.*
27. *Iridifolius.* Cape of Good Hope. *Peren.*
28. *Refractus.* Cape of Good Hope. *Peren.*
29. *Alatus.* Cape of Good Hope. *Peren.*
30. *Bicolor.* Cape of Good Hope, on the hills of Groene Kloof. *Peren.*
31. *Anceps.* Cape of Good Hope. *Peren.*
32. *Fissifolius.* Cape of Good Hope. *Peren.*
33. *Silinoides.* Cape of Good Hope. *Peren.*
34. *Roseus.* Cape of Good Hope. *Peren.*
35. *Junceus.* Cape of Good Hope. *Peren.*
36. *Setifolius.* Cape of Good Hope. *Peren.*
37. *Marginatus.* Cape of Good Hope. *Peren.*
38. *Angustus.* Cape of Good Hope. *Peren.*
39. *Undulatus.* Cape of Good Hope. *Peren.*
40. *Flavus.* Cape of Good Hope. *Peren.*
41. *Securiger.* Cape of Good Hope. *Peren.*
42. *Tubiflorus.* Cape of Good Hope. *Peren.*
43. *Tubatus.* Cape of Good Hope. *Peren.*
44. *Floribundus.* Cape of Good Hope. *Peren.*
45. *Blandus.* Cape of Good Hope. *Peren.*
46. *Plicatus.* Cape of Good Hope. *Peren.*
47. *Strictus.* Cape of Good Hope. *Peren.*
48. *Mucronatus.* Cape of Good Hope. *Peren.*
49. *Spathaceus.* Cape of Good Hope. *Peren.*
50. *Gramineus.* Cape of Good Hope. *Peren.*

* 51. *Quadrangularis.* Cape of Good Hope. *Peren.*
* 52. *Namaquensis.* Cape of Good Hope. *Peren.*
* 53. *Versicolor.* Cape of Good Hope. *Peren.*
* 54. *Milleri.* Cape of Good Hope. *Peren.*
* 55. *Cardinalis.* Cape of Good Hope. *Peren.*

* 56. *Byzantinus.* Turkey. *Peren.*
* 57. *Communis.* South of Europe. *Peren.*
* 58. *Segetum.* South of Europe. *Peren.*
* 59. *Alatus.* Cape of Good Hope. *Peren.*
* 60. *Spiralis.*
* 61. *Pterophyllus.*
* 62. *Punctatus.*
* 63. *Violaceus.*
* 64. *Orchidiflorus.*
* 65. *Nervosus.*
* 66. *Puniceus.*
* 67. *Crocatus.*
* 68. *Sulphureus.*
* 69. *Nanus.*
* 70. *Grandiflorus.*
* 71. *Campanulatus.*
* 72. *Affinis.*
* 73. *Paniculatus.*
* 74. *Trimaculatus.*
* 75. *Bimaculatus.*
* 76. *Ventricosus.*
* 77. *Resupinatus.*
* 78. *Longiflorus.*
* 79. *Alopecuroideus.*
* 80. *Plantagineus.*

Some of these species are given by Willdenow under Gladiolus and Ixia. See Persoon's *Synopsis,* p. 43.

Mr Ker, in the Botanical Magazine, gives the name of *Alatus* to No. 59, a new species; and the name of *Viperatus* to No. 29. which we have called *Alatus,* after Willdenow. See the new genera Anomatheca, Tritonia, Watsonia, and Melasphærula of this Class.

‡ 97. Iris. *Cor.* 6-partita: laciniis alternis reflexis. *Stigmata* petaliformia.

1. *Ciliata.* On the hills at the Cape of Good Hope. *Peren.*
2. *Minuta.* Mount Leuwestart at the Cape of Good Hope. *Peren.*
3. *Pumila.* Germany, Austria, and the hills of Hungary. *Peren.*
4. *Lutescens.* Mountainous places of Germany and France. *Peren.*
5. *Cristata.* North America. *Peren.*
6. *Susiana.* In the East. *Peren.*
7. *Florentina.* S. of Europe, Carniola. *Peren.*
8. *Flavissima.* Humid places of Siberia. *Peren.*
9. *Biflora.* Rocks of Portugal, and about the lake Baikal in Siberia. *Peren.*
10. *Aphylla,* or *Nudicaulis* *Peren.*
11. *Variegata.* Hungary. *Peren.*
12. *Squalens.* South of Europe. *Peren.*
13. *Japonica.* Japan. *Peren*
14. *Sambucina.* South of Europe. *Peren.*
15. *Lurida.* South of Europe. *Peren.*
16. *Germanica.* Germany and Switzerland. *Peren.*
17. *Pallida.* In the East. *Peren.*
18. *Compressa.* Interior regions of the Cape of Good Hope. *Shrub.*
19. *Dichotoma.* Dauria. *Peren.*
20. *Tripetala.* Cape of Good Hope. *Peren.*
21. *Tricuspis.* Cape of Good Hope. *Peren.*
22. *Xiphyum.* Spain and Siberia. *Peren.*
23. *Xiphioides.* Spain. *Peren.*
24. *Pseud-Acorus.* Europe. *Peren.*
25. *Fœtidissima.* France, England, and Tuscany, *Peren.*
26. *Virginica.* Virginia.
27. *Versicolor.* Virginia, Maryland, and Pennsylvania. *Peren.*
28. *Halophila.* Siberia. *Peren.*
29. *Ochroleuca.* In the East. *Peren.*
30. *Spathacea.* Interior regions of the Cape of Good Hope. *Peren.*

31. *Ramosa.* The sandy parts of Schwartland, Cape of Good Hope. *Peren.*
32. *Sisyrinchium.* Spain, Portugal, and Barbary. *Peren.*
33. *Verna.* Virginia. *Peren.*
34. *Persica.* Persia. *Peren.*
35. *Juncea.* Barbary. *Peren.*
36. *Angusta.* Cape of Good Hope. *Peren.*
37. *Setacea.* Cape of Good Hope. *Peren.*
38. *Tenuifolia.* Sandy parts of Dauria and at the Wolga. *Peren.*
39. *Ventricosa.* Mountains of Dauria. *Peren.*
40. *Graminea.* Foot of mountains in Austria. *Peren.*
41. *Ensata.* Japan. *Peren.*
42. *Spuria.* Meadows of Germany and Siberia. *Peren.*
43. *Orientalis*, or *Imberbis.* Japan. *Peren.*
44. *Sibirica*, the *Pratensis* of Persoon. Meadows of Germany, Austria, Siberia, and Switzerland. *Peren.*
45. *Martinicensis.* Martinique. *Peren.*
46. *Pavonia.* Cape of Good Hope. *Peren.*
47. *Crispa.* Hills Cape of Good Hope. *Peren.*
48. *Papilionacea.* Cape of Good Hope. *Peren.*
49. *Edulis.* Sandy fields, Cape of Good Hope. *Peren.*
50. *Tristis.* Cape of Good Hope. *Peren.*
51. *Polystachya.* Cape of Good Hope. *Peren.*
52. *Viscaria.* Cape of Good Hope, and sandy places at Saldanha Bay. *Peren.*
53. *Bituminosa.* Cape of Good Hope. *Peren.*
54. *Tuberosa.* Arabia and in the East. *Peren.*
*55. *Ruthenica.* Siberia. *Peren.*
*56. *Subbiflora.* Portugal. *Peren.*
*57. *Fimbriata.* China. *Peren.*
*58. *Lusitanica.* Portugal. *Peren.*
*59. *Arenaria.* Hungary.
*60. *Plicata.* } Cultivated in gardens.
*61. *Swertii.* } See Lamarck, *Illust.*
*62. *Plumaria*, the *Moræa Iriopetala* of Willd.
*63. *Northiana.* Brazil.
*64. *Orientalis barbata.* Constantinople. The *Morea Iridioides* of Willdenow.
*65. *Stylosa.* Algiers. } Desfontaine
*66. *Scorpioides.* Algiers. } *Flor. Atl.*
*67. *Longifolia.* Cape of Good Hope.
*68. *Elegans.* Seldom in gardens.
*69. *Fugax.* Cape of Good Hope.

See the genera Morea and Marica of this class.

93. Ixia. *Cor.* 6-partita, patens, æqualis. *Stigmata* 3, erectiusculo-patula.

1. *Fruticosa.* Mountains at the Cape of Good Hope. *Shrub.*
2. *Minuta.* Sandy inundated places, Cape of Hood Hope. *Peren.*
3. *Rosea.* Cape of Good Hope. *Peren.*
4. *Chloroleuca.* Cape of Good Hope. *Peren.*
5. *Bulbocodium.* See Trichonema. The Alps of Italy. *Peren.*
6. *Cruciata.* See Trichonema. Cape of Good Hope. *Peren.*
7. *Fragrans.* Cape of Good Hope. *Peren.*
8. *Humilis.* Cape of Good Hope. *Peren.*
9. *Pilosa.* Cape of Good Hope. *Peren.*
10. *Hirta.* Moist sandy parts at the Cape of Good Hope. *Peren.*
11. *Secunda.* Cape of Good Hope.
12. *Villosa*, or *Cærulescens.* Cape of Good Hope. *Peren.*
13. *Rubro-cyanea.* Cape of Good Hope. *Peren.*
14. *Punicea.* Cape of Good Hope. *Peren.*
15. *Purpurea.* Cape of Good Hope. *Peren.*
16. *Crispa.* Gape of Good Hope. *Peren.*
17. *Cinnamomea.* See Hesperantha. Hills of Leuwestart, Cape of Good Hope. *Peren.*
18. *Corymbosa.* Gravelly places of Swarthland, Cape of Good Hope. *Peren.*
19. *Heterophylla.* Cape of Good Hope. *Peren.*
20. *Anemonæflora.* Cape of Good Hope. *Peren.*
21. *Cœlestina.* Carolina. *Peren.*
22. *Spicata.* Tops of the mountains of the Hottentots, Cape of Good Hope. *Peren.*
23. *Plantaginea.* Cape of Good Hope, on the hills, and often on the road sides. *Peren.*
24. *Linearis.* Cape of Good Hope. *Peren.*
25. *Incarnata.* Cape of Good Hope. *Peren.*
26. *Patens.* Cape of Good Hope. *Peren.*
27. *Capillaris.* Sandy and moist places of the Cape of Good Hope. *Peren.*
28. *Flexuosa.* Cape of Good Hope. *Peren.*
29. *Angusta.* Cape of Good Hope. *Peren.*
30. *Radiata.* See Hesperantha. Cape of Good Hope. *Peren.*
31. *Virgata*, the *Morea Virgata* of Persoon. Cape of Good Hope. *Peren.*
32. *Longiflora.* Cape of Good Hope. *Peren.*
33. *Scillaris.* Cape of Good Hope. *Peren.*
34. *Aristata.* Cape of Good Hope. *Peren.*
35. *Pendula.* Near Krumrivier, Cape of Good Hope. *Peren.*
36. *Bulbifera.* Cape of Good Hope. *Peren.*
37. *Leucantha.* Cape of Good Hope. *Peren.*
38. *Erecta.* Cape of Good Hope. *Peren.*
39. *Maculata.* Cape of Good Hope. *Peren.*
40. *Deusta.* Cape of Good Hope. *Peren.*
41. *Crocata.* Cape of Good Hope. *Peren.*
42. *Squalida.* Cape of Good Hope. *Peren.*
43. *Lancea.* Cape of Good Hope, below Picketberg. *Peren.*
44. *Pentandra.* Cape of Good Hope. *Peren.*
45. *Aulica.* Cape of Good Hope. *Peren.*
46. *Falcata.* See Hesperantha. Hills of the Cape of Good Hope. *Peren.*
47. *Excisa.* Cape of Good Hope. *Peren.*
*48. *Conica.* Cape of Good Hope. *Peren.*
*49. *Monadelphia.* Cape of Good Hope. *Peren.*
*50. *Columellaris.* Cape of Good Hope. *Peren.*
*51. *Crateroides.* Cape of Good Hope. *Peren.*
*52. *Retusa.* Cape of Good Hope. *Peren.*
*53. *Fastigiata.* Cape of Good Hope.
*54. *Pusilla.* (Andrews' *Repository.*)
*55. *Filiformis.* Cape of Good Hope.
*56. *Speciosa.* } Andrews' *Rep.* t. 128, 129,
*57. *Polystachya.* } 186, 245.
*58. *Capitata.* }
*59. *Viridiflora.* Cape of Good Hope.
*60. *Lancea.* (*Thunberg.*)

*61. *Columnaris.* Cape of Good Hope.
*62. *Grandiflora.* Cape of Good Hope.
*63. *Fimbriata.* (*Lamarck.*)
*64. *Chinensis.* *Moræa Chin.* of Willdenow.

See the *Botanical Magazine*, p. 539, 594, 609, 630, and the *Hortus Kewensis*, for an account of species 48 to 52; and Persoon's *Synopsis* for species 53 to 63. See TRICHONEMA.

96. ARISTEA. *Petala* 6. *Stylus* declinatus. *Stigma* infundibuliforme hians. *Caps.* infera polysperma.

1. *Cyanea*, or *Eriophora.* Cape of Good Hope. *Peren.*

Under this genus Mr Ker ranks the species *Spiralis*, *Melaleuca*, and *Cœrulea*, of the genus MORÆA.

98. MOREA. *Cor.* Hexapetala; petala 3 interiora patentia; angustiora. *Stigma* 3-fidum.

1. *Melaleuca*, or *Lugens* of Persoon. Cape of Good Hope. *Peren.*
2. *Spiralis.* Cape of Good Hope. *Peren.*
3. *Pusilla.* Cape of Good Hope. *Peren.*
4. *Magellanica.* Straits of Magellan. *Peren.*
5. *Gladiata.* Cape of Good Hope. *Peren.*
6. *Aphylla.* Cape of Good Hope. *Peren.*
7. *Filiformis.* Cape of Good Hope. *Peren.*
8. *Spathacea.* In great quantities on the hills at the Cape of Good Hope. *Peren.*
9. *Flexuosa.* Cape of Good Hope. *Peren.*
10. *Polyanthos.* Cape of Good Hope. *Peren.*
11. *Cœrulea.* Cape of Good Hope. *Peren.*
12. *Plicata.* Caribbee Islands. *Peren.*
13. *Umbellata.* Cape of Good Hope, near Picketberg. *Peren.*
14. *Crispa.* Cape of Good Hope. *Peren.*
15. *Iriopetala*, the *Iris Plumaria* of Persoon. Cape of Good Hope. *Peren.*
16. *Iridioides*, the *Iris Orientalis Barbata* of Persoon. In the East, and about Constantinople. *Peren.*
17. *Chinensis*, the *Ixia Chinens.* of Persoon. Sandy places of India, China, and Japan. *Peren.*
*18. *Tenuis.* Cape of Good Hope. *Peren.*
*19. *Unguiculata.* Cape of Good Hope. *Peren.*
*20. *Longiflora.* Cape of Good Hope. *Peren.*
*21. *Ramosa.* Cape of Good Hope. *Peren.*

In the *Hortus Kewensis*, the species of the genus IRIS, which we have marked 1, 20, 21, 32, 46, 47, 48, 49, 50, 52, 53, are given with the same specific names under the above genus. Other species *Collina*, *Elegans*, and *Grandiflora*, are given under MORÆA by Persoon, which Willdenow places under SISYRINCHIUM.

100. DILATRIS. *Cor.* 6-petala hirsuta. *Filamentum* tertium reliquis minus. *Stigma* simplex. *Caps.* globosa infera trilocularis.

1. *Corymbosa.* Gravelly places of the Cape of Good Hope. *Peren.*
2. *Viscosa.* Top of the Table Mountain Cape of Good Hope. *Peren.*
3. *Paniculata.* Sandy parts of the Cape of Good Hope. *Peren.*
*4. *Ixioides.* Cape of Good Hope. (*Lamarck.*)
*5. *Heritiera.* Boggy parts of Carolina. (*Michaux.*)

101. WITSENIA. *Cor.* 1-petala cylindrica 6-partita. *Stigma* emarginatum. *Caps.* supera.

1. *Maura.* Cape of Good Hope. *Peren.*
*2. *Corymbosa.* Cape of Good Hope. *Peren.*

99. MARICA. *Cor.* 1-petala, 6-partita; laciniis 3 alternis duplo minoribus. *Stig.* petaloideum trifidum: laciniis indivisis acutis. *Caps.* trilocularis infera.

1. *Paludosa.* Meadows of Guiana. *Peren.*
*2. *Northiana.* Brazil. *Peren.*
*3. *Pyramidalis.* Mauritius.
*4. *Magellanica.* Straits of Magellan.

Mr Ker, in the Annals of Botany, has given a new species under the name of *Martinicensis*, which is the same as the *Iris Martinicensis* already given.

103. WACHENDORFIA. *Cor.* 6-petala, inæqualis, infera. *Caps.* 3-locularis, supera.

1. *Thyrsiflora.*
2. *Paniculata.*
3. *Hirsuta.*
4. *Tenella.*
5. *Graminea.*
*6. *Brevifolia.*

All perennial, and from the Cape of Good Hope.

102. XIPHIDIUM. *Cor.* 6-petala æqualis. *Capsula* supera 3-locul. polysperma.

1. *Album.* Cumana. *Peren.*
2. *Cœruleum.* Meadows of Guiana. *Peren.*

104. COMMELINA. *Cor.* 6-petala. *Nectaria* 3, cruciata, filamentis propriis inserta.

1. *Communis.* America. *Ann.*
2. *Africana.* Ethiopia. *Peren.*
3. *Bengalensis.* Bengal.
4. *Erecta.* Virginia. *Peren.*
5. *Virginica.* Virginia. *Peren.*
6. *Longicaulis.* Rivers and wet parts of Caraccas. *Peren.*
7. *Mollis.* Caraccas. *Peren.*
8. *Tuberosa.* Mexico. *Peren.*
9. *Vaginata.* East Indies. *Ann.*
10. *Nudiflora.* Dry grassy parts of the East Indies. *Ann.*
11. *Cucullata.* East Indies.
12. *Japonica.* Japan.
13. *Spirata.* Rivers and wet places in the East Indies. *Ann.*
*14. *Polygama.* Japan.
*15. *Cayennensis.* Cayenne. } Richard, *Act. Soc.*
*16. *Pilosa.* Cayenne. } *Linn. Par.*
*17. *Angustifolia.* Carolina. (*Michaux.*)
*18. *Bracteolata.* India. (*Lamarck.*)
*19. *Hispida.* Hills of Cumana.
*20. *Fasciculata.* Hills and fields of Lima.
*21. *Nervosa.* Cuchero in Peru.
*22. *Gracilis.* Peru.
*23. *Serrulata.* Cayenne. (Vahl. *Eclog.*)

Species 19—22. See *Flor. Peruv.*

76. OXYBAPHUS. *Cal.* 3-fidus campanulatus. *Cor.* infundibuliformis. Nux 5-gona 1-sperma calyce explanato persistenti circumdata.

1. *Viscosus.* Peru. *Peren.*

78. MACROLOBIUM. *Cal.* duplex: exterior 2-phyllus, interior turbinatus oblique 5-dentatus. *Cor.* 5-petala inæqualis. *Legum.* monospermum.

1. *Pinnatum.* Woods of Guiana. *Shrub.*
2. *Hymenæoides*, or *Bifolium.* Woods of Cayenne and Guiana, on the banks of rivers. *Shrub.*
3. *Sphærocarpum.* Woods of Guiana. *Shrub.*

79. ROHRIA. *Cal.* Campanulat. 5-partit. *Cor.* 5-

ass III.
iandria.

petala inæqualis. Stigmata 3 revoluta. *Capsula?*
1. *Petioliflora.* Woods of Guiana. *Shrub.*

89. Hippocratea. *Cal.* 5-partitus. *Petala* 5. *Caps.* 3. obcordatæ.
1. *Volubilis*, or *ovata.* South America. *Shrub.*
2. *Indica.* East Indies. *Shrub.*
3. *Comosa.* Hispaniola. *Shrub.*
*4. *Scandens.* South America. *Shrub.*
*5. *Verticillata.* Senegal and Madagascar.
*6. *Viridis.* Groves of the Andes. *Shrub.*
*7. *Anthodon.* Groves of the Andes. *Shrub.*
See Lamarck. *Illustrat.* and *Flor. Peruv.*

90. Tonsella. *Cal.* 5-partitus. *Petala* 5. *Nect.* urceolatum. *Bacca* 1-locul. 4-sperma.
1. *Scandens.* Guiana, Island of Trinidad. *Shrub.*
2. *Africana.* Guinea. *Shrub.*

87. Loeflingia. *Cal.* 5-phyllus. *Cor.* 5-petala, minima. *Caps.* 1-locularis, 3-valvis.
1. *Hispanica.* Spain. *Ann.*
2. *Indica.* East Indies.

83. Willichia. *Cal.* 4-fidus. *Cor.* 4-fida. *Caps.* 2-locularis, polysperma.
1. *Repens.* Mexico. *Ann.*

105. Callisia. *Cal.* 3-phyllus. *Petala* 3. *Antheræ* geminæ. *Caps.* 2-locularis.
1. *Repens.* South America and West Indies. *Peren.*
*2. *Ciliata.* Peru. (*Flor. Peruv.*)
*3. *Umbellata.* South America. (*Lamarck.*)

106. Syena. *Cal.* 3-phyllus. *Petala* 3. *Anth.* oblongæ. *Caps.* 1-locularis 3-valvis.
1. *Fluviatilis.* Rivulets of Guiana and Carolina.

80. Rumphia. *Cal.* 3-fidus. *Petala* 3. Drupa 3-locularis.
1. *Amboinensis.* India. *Shrub.*

91. Fissilia. *Cal.* urceolatus integer. *Cor.* 3-petala, petalis cohærentibus, binis bifidis. *Stam.* 8, quorum 5 sterilia. *Nux.* 1 sperma.
1. *Psittacorum.* Isle of Bourbon. *Shrub.*

81. Cneorum. *Cal.* 3-dentatus. *Petala* 3-æqualia. *Bacca* 3-cocca.
1. *Tricoccon.* Spain and Narbonne. *Shrub.*
*2. *Pulverulentum.* Teneriffe. *Shrub.*

107. Xyris. *Cor.* 3-petala, æqualis, crenata. Glumæ bivalves in capitulum. *Caps.* supera.
1. *Indica.* In the Indies. *Peren.*
2. *Pauciflora.* Malabar, New Holland. *Peren.*
3. *Americana.* Warm parts of America. *Peren.*
4. *Capensis.* Cape of Good Hope. *Peren.*
*5. *Subulata.* Peru. (*Flor. Peruv.*)
*6. *Brevifolia.* Georgia. (*Michaux.*)
*7. *Anceps.* From Maryland to Florida. (*Mich.*)
*8. *Complanata.* New Holland.
*9. *Scabra.* New Holland.
*10. *Lævis.* New Holland and New South Wales.
*11. *Pusilla.* New Holland.
*12. *Denticulata.* New Holland.
*13. *Paludosa.* New Holland.
*14. *Bracteata.* New South Wales.
*15. *Juncea.* New South Wales.
*16. *Gracilis.* N. Holland and Van Diemen's Isl.
*17. *Flexifolia.* New Holland.
*18. *Teretifolia.* New Holland.
*19. *Lacera.* New Holland.
*20. *Operculata.* New Holland.
*21. *Lanata.* New Holland.
Species 8—21, see Brown's *Prodromus*, p. 255.

Class III.
Triandria.

82. Comocladia. *Cal.* 3-partitus. *Cor.* 3-partita. Drupa oblonga, nuce biloba.
1. *Integrifolia.* Jamaica, and warm parts of America. *Shrub.*
2. *Dentata.* West Indies, and South America. *Shrub.*
3. *Ilicifolia,* Caribbee islands, and Antigua. *Shrub.*
4. *Angulosa.* America. *Shrub.*

77. Olax. *Cal.* integer. *Cor.* infundibuliformis, 3-fida, Nectario 4-phyllo.
1. *Zeylanica.* Ceylon. *Shrub.*
*2. *Scandens.*
*3. *Phyllanthi.* New Holland.
*4. *Stricta.* New Holland.
*5. *Aphylla.* New Holland.
} See Brown's *Prodromus*, p. 357.

85. Rotala. *Cal.* 3-dentatus. *Cor.* 0. *Caps.* 3-locularis, polysperma.
1. *Verticillaris.* East Indies. *Ann.*

86. Ortegia. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 1-locularis. *Sem.* plurima.
1. *Hispanica.* Castile and Salamanca. *Peren.*
2. *Dichotoma.* Italy. *Peren.*

88. Polycnemum. *Cal.* 3-phyllus. *Pet.* 5, calyciformia. *Sem.* 1. subnudum. (*Stam.* 1, 2, 3, *et* 5.)
1. *Monandrum.* Siberia. *Peren.*
2. *Sclerospermum.* Salt muddy places of Siberia at Jaik, and about lake Altan. *Ann.*
3. *Arvense.* In the fields of France, Italy, and Germany. *Ann.*
4. *Salsum.* Brackish, wet and sandy parts of Siberia. *Peren.*
5. *Oppositifolium.* Salt marshes towards the Caspian Sea. *Ann.*

Sect. III. *Grasses; the Glumes of the Calyx having Valves.*

‡111. Schoenus. Glumæ paleaceæ, univalves: congestæ. *Cor.* 0. *Sem.* 1. subrotundum inter glumas.
1. *Mariscus.* Marshes of Europe. *Peren.*
2. *Junceus.* Guinea. *Peren.*
3. *Mucronatus.* Sandy coasts of Tuscany, Smyrna, Spain, and Narbonne. *Peren.*
4. *Pilosus.* Guinea. *Peren.*
5. *Filiformis.* Cape of Good Hope. *Peren.*
6. *Striatus.* Cape of Good Hope. *Peren.*
7. *Capitellum.* Cape of Good Hope. *Peren.*
8. *Scariosus.* East Indies and Cape of Good Hope. *Peren.*
9. *Nigricans.* Dried marshes of Europe. *Peren.*
10. *Ferrugineus.* Fens of Gothland and England. *Peren.*
11. *Fuscus.* Sweden, England, Italy, and Germany. *Peren.*
12. *Tristachyos.* Cape of Good Hope. *Peren.*
13. *Cuspidatus.* Cape of Good Hope. *Peren.*
14. *Aristatus.* Cape of Good Hope. *Peren.*
15. *Compar.* Cape of Good Hope. *Peren.*
16. *Flexuosus.* Involucratus. Cape of Good Hope. *Peren.*
17. *Capillaceus.* Cape of Good Hope. *Peren.*
18. *Ustulatus.* Cape of Good Hope. *Peren.*

19. *Spicatus.* Cape of Good Hope. *Peren.*
20. *Bobartiæ.* Ceylon. *Peren.*
21. *Stellatus.* Florida, and Caribbee islands. *Peren.*
22. *Bulbosus.* Cape of Good Hope. *Peren.*
23. *Inanis.* Cape of Good Hope. *Peren.*
24. *Cephalotes.* Surinam. *Peren.*
25. *Cyperoides.* Jamaica. *Peren.*
26. *Cymosus.* North America. *Peren.*
27. *Glomeratus.* Jamaica, and North America.
28. *Cladium.* Moist parts of Jamaica. *Peren.*
29. *Effusus.* Jamaica. *Peren.*
30. *Restioides.* West Indies.
31. *Surinamensis.* Guiana and the Caribbee islands. *Peren.*
32. *Thermalis.* At the warm springs of the Cape of Good Hope. *Peren.*
33. *Lævis.* Cape of Good Hope.
34. *Lanceus.* Cape of Good Hope.
35. *Albus.* North of Europe. *Peren.*
36. *Gracilis.* Jamaica and Surinam.
37. *Setaceus.* Wet and clayey meadows of Jamaica and Surinam.
38. *Pusillus.* Woody and grassy mountains in the south of Jamaica.
39. *Capillaris.* Hispaniola.
*40. *Rufus.* Scotland. *Peren.* } See Smith,
*41. *Monoicus.* England. *Peren.* } *Eng. Bot.*
*42. *Hirsutus.* South America.
*43. *Corymbosus*, the *Scirpus Cormyb.* of Willd.
*44. *Rugosus.* South America.
*45. *Polyphyllus.* Montserrat.
*46. *Polycephala.* South America. Cayenne.
*47. *Sparsus.* Carolina.
*48. *Longirostris.* Virginia, and Carolina.
*49. *Inexpansus.* North America.
*50. *Rariflorus.* North America.
*51. *Capitatus.* North America.
*52. *Ciliaris.* Florida.
*53. *Distans.* Carolina.
*54. *Fascicularis.* Carolina.

Sp. 42—46, see Vahl, *Eclog. Amer.* Sp. 47—54, see Michaux, *Flor. Bor. Amer.*

Dr Smith adds another species, viz. *compressus*, which we have given under SCIRPUS *caricis*. See his *Flor. Brit.* i. p. 44.

‡112. CYPERUS. Glumæ paleaceæ distiche imbricatæ. *Cor.* 0. *Sem.* 1. Nudum.

1. *Minimus.* Jamaica and Africa.
2. *Setaceus.* Moist grassy grounds of Calcutta.
3. *Arenarius.* In the sandy parts of the East Indies. *Peren.*
4. *Prolifer.* Cape of Good Hope. *Peren.*
5. *Effusus.* Mecca in Arabia.
6. *Articulatus.* Jamaica, Egypt, and the rivulets of India. *Peren.*
7. *Marginatus.* Cape of Good Hope. *Peren.*
8. *Complanatus.* Java. *Peren.*
9. *Texilis.* At the rivulets of the Cape of Good Hope. *Peren.*
10. *Compactus.* China.
11. *Monostachyos*, or *Caribæus* of Persoon. East Indies and the dry pastures of Jamaica and Hispaniola.
12. *Distachyos.* Italy.
13. *Triflorus.* Dry pastures of India.
14. *Nanus.* Guinea.
15. *Filiformis.* Jamaica.
16. *Dubius.* Malabar.
17. *Capitatus.* India?
18. *Niveus.* In the groves of Midnapour, and Tschandrancona in India. *Peren.*
19. *Pannonicus.* Austria and Hungary. *Ann.*
20. *Mucronatus.* Arabia and India.
21. *Lævigatus.* Cape of Good Hope. *Peren.*
22. *Squarrosus.* India.
23. *Nitens.* India.
24. *Polystachyos*, or *Fascicularis* of Persoon. India, Cape of Good Hope, and New Holland. *Peren.*
25. *Conglomeratus.* Arabia. *Peren.*
26. *Cruentus.* Arabia.
27. *Aristatus.* East Indies and the Cape of Good Hope.
28. *Luzulæ.* Warm parts of America.
29. *Confertus.* Jamaica. *Peren.*
30. *Viscosus.* Wet shores of Jamaica, Antigua and Venezuela. *Peren.*
31. *Ligularis.* Jamaica and Africa.
32. *Glomeratus*, or *Alopecuroides* of Persoon. Arabia Felix, India, Cape of Good Hope, and New Holland. *Peren.*
33. *Imbricatus.* India.
34. *Maderaspatanus.* India. *Ann.*
35. *Castaneus.* India.
36. *Elegans.* Jamaica, in marshy places near the sea.
37. *Surinamensis.* Surinam.
38. *Flavidus.* India.
39. *Flavescens.* Germany, Switzerland, France, and Italy, in marshy places. *Ann.*
40. *Fuscus.* Germany, Switzerland, France, and Egypt, in wet meadows. *Ann.*
41. *Virescens*, or *Viridis* of Persoon. Mountainous parts of Silesia. *Ann.*
42. *Difformis.* India, New Holland.
43. *Jemenicus.* Arabia Felix, and in the grassy parts of Ceylon. *Peren.*
44. *Strigosus.* Jamaica, Virginia, in marshy places, and in India.
45. *Tenuis.* Jamaica.
46. *Tuberosus.* India. *Peren.*
47. *Pumilus.* India.
48. *Stoloniferus.* India. *Peren.*
49. *Compressus.* Grassy meadows of Jamaica and North America.
50. *Pulcher.* Cape of Good Hope.
51. *Vegetus*, or *Monandrus* of Persoon. *Peren.*
52. *Albidus.* India.
53. *Rotundus*, or *Hexastachyos* of Persoon. India, New Holland. *Peren.*
54. *Glaber.* Moist places near Verona. *Ann.*
55. *Odoratus.* America, on the banks of rivers. *Peren.*
56. *Esculentus.* Montpellier, Italy, and the East. *Peren.*
57. *Tenuiflorus.* *Peren.*
58. *Pangorei.* India. *Peren.*
59. *Denudatus.* Cape of Good Hope. *Peren.*
60. *Lanceus.* Cape of Good Hope.
61. *Longus.* Marshes of Italy, France, and Carniola. *Peren.*
62. *Fastigiatus.* India. *Peren.*

63. *Canaliculatus.* East Indies.
64. *Monti.* Sea coasts of Italy and Tergesti. *Peren.*
65. *Iria.* India.
66. *Santonici.* India.
67. *Corymbosus.* Asia and Cape of Good Hope.
68. *Racemosus.* East Indies.
69. *Haspan.* India and Ethiopia. *Peren.*
70. *Elatus.* India.
71. *Distans.* Caribbee Islands. *Peren.*
72. *Diphyllus.* Found in streams in the E. Indies.
73. *Papyrus.* Rivers of Calabria, Sicily, Syria, and Egypt. *Peren.*
74. *Flabelliformis.* Arabia Felix. *Peren.*
75. *Alternifolius.* Madagascar. *Peren.*
76. *Spathaceus.* Virginia. *Peren.*

*77. *Atropurpureus*, or *Striatus.* Dry hills of Tarma in Peru. (*Fl. Peruv.*)
*78. *Junciformis.* Barbary and Spain. (*Desfont.*)
*79. *Ornithopus.* Dried marshes of St Domingo.
*80. *Pygmæus.* Near the river Seba in Morocco.
*81. *Conoideus.* Cayenne.
*82. *Brizæus.* South America.
*83. *Scopellatus.* Martinique.
} See Richard, *Act. Soc. Linn. Par.* p. 106.
*84. *Hydra.* North America. (*Michaux.*)
*85. *Tetrastachyos.* At river Taddah in Algiers.
*86. *Brunneus.* West Indies.
*87. *Badius.* Algiers. (*Desfont.*)
*88. *Pallescens.* Near La Calle. (*Desfont.*)
*89. *Flavicomus.* Carolina. (*Michaux.*)
*90. *Virens.* Carolina. (*Michaux.*)
*91. *Niger.* Cercado and Chancay in Peru. *Ann.*
*92. *Debilis.*
*93. *Gracilis.*
*94. *Enervis.*
*95. *Lævis.*
*96. *Pulchellus.*
*97. *Trinervis.*
*98. *Imbecillis.*
*99. *Aquatilis.*
*100. *Flaccidus.*
*101. *Inundatus.*
*102. *Tetraphyllus.*
*103. *Breviculmis.*
*104. *Platyculmis*
*105. *Concinnus.*
*106. *Angustatus.*
*107. *Platystilis.*
*108. *Fulvus.*
*109. *Sporobulus.*
*110. *Sexflorus.*
*111. *Microcephalus.*
*112. *Holoschœnus.*
*113. *Unioloides.*
*114. *Carinatus.*
*115. *Alterniflorus.*
*116. *Areolatus.*
*117. *Scariosus.*
*118. *Littoralis.*
*119. *Ornatus.*
*120. *Compositus.*
*121. *Ventricosus.*
*122. *Subulatus.*
*123. *Acutus.*
*124. *Lucidus.*
*125. *Vaginatus.*

The species from 92 to 125 are all from New Holland. See Brown's *Prodromus*, p. 212.

‡ 113. Scirpus. *Glumæ* paleaceæ, undique imbricatæ. *Cor.* 0. *Sem.* 1, imberbe.

1. *Mutatus.* Jamaica. *Peren.*
2. *Spiralis.* India. *Peren.*
3. *Articulatus.* Malabar, in wet sandy places.
4. *Plantagineus.* India. *Peren.*
5. *Nutans.* Muddy places in Malacca. *Peren.*
6. *Palustris.* Ditches and inundated places in Europe. *Peren.*
7. *Geniculatus.* Jamaica.
8. *Caricis*, or *Compressus* of Persoon. Germany, Sweden, England, Switzerland, Italy. *Peren.*
9. *Cæspitosus.* Marshy and turfy parts of Europe. *Peren.*
10. *Bæothryon.* Sweden, Germany, France, and England. *Peren.*
11. *Campestris.* Duchies of Oldenburg and Bremen. *Peren.*
12. *Capitatus.* Virginia, and in the Caribbee Islands. *Peren.*
13. *Ovatus.* Wet places in Silesia and Germany. *Peren.*
14. *Atropurpureus.* Wet and boggy parts of India.
15. *Polytrichoides.* Ceylon, in wet pastures.
16. *Acicularis.* Europe, under pure water. *Peren.*
17. *Fluitans.* See the new genus Isolepis. England, France, Germany, and New Holland. *Peren.*
18. *Lacustris.* Europe and New Holland, in pure, stagnant, and running water. *Peren.*
19. *Glomeratus.* Sides of the fields in Ceylon. *Peren.*
20. *Arvensis.* Ceylon.
21. *Truncatus.* Cape of Good Hope.
22. *Laciniatus.* Cape of Good Hope.
23. *Membranaceus.* Cape of Good Hope.
24. *Pilosus.* Cape of Good Hope.
25. *Hystrix.* Cape of Good Hope.
26. *Holoschœnus.* South of Europe. *Peren.*
27. *Australis.* Smith, *Flor. Brit.* i. p. 53.
28. *Romanus.* Provence, Siberia, and Rome. *Peren.*
29. *Nodosus.* See new genus Isolepis. Cape of Good Hope, New Holland.
30. *Radiatus.* Cape of Good Hope. *Peren.*
31. *Setaceus.* See the new genus Isolepis. Europe, stagnant water on the sea shore, and in New Holland. *Peren.*
32. *Supinus.* See the new genus Isolepis. Near Paris, in the electorate of Brandenburg, and in New Holland. *Peren.*
33. *Natans.* Cape of Good Hope, in water.
34. *Vaginatus.* Cape of Good Hope.
35. *Tristachyos.* Cape of Good Hope.
36. *Uncinatus.* India.
37. *Aristatus.* India.
38. *Autumnalis.* Virginia and Jamaica. *Peren.*
39. *Diphyllus.* Tranquebar.
40. *Fastigiatus.* Cape of Good Hope.
41. *Globulosus.* India.
42. *Globiferus.* Teneriffe.
43. *Capillaris*, or *Barbatus.* See the new genus Isolepis. Ceylon and New Holland.
44. *Frispicatus.* Cape of Good Hope. *Peren.*
45. *Lateralis.* Ceylon.
46. *Triqueter.* South of Europe, North America, and New Holland. *Peren.*
47. *Mucronatus.* England, Italy, Switzerland, and New Holland, in stagnant water. *Peren.*
48. *Dichotomus.* India, Arabia, and Italy. *Ann.*
49. *Echinatus.* East and West Indies.
50. *Retrofractus.* Virginia. *Peren.*
51. *Ferrugineus.* Marshes and dry places of Jamaica. *Peren.*
52. *Spadiceus.* Rivers in Jamaica.
53. *Anomalus* India.

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54. *Miliaceus.* India. *Peren.*
55. *Maritimus.* Shores of Europe, New Holland, and Carolina. *Peren.*
56. *Grossus.* India.
57. *Luzulæ.* India.
58. *Sylvaticus.* Damp woods of Europe. *Peren.*
59. *Corymbosus.* India.
60. *Æstivalis.* Dried up rivers in Ceylon. *Peren.*
61. *Squarrosus.* East Indies.
62. *Dipsaceus.* India.
63. *Junciformis.* China.
64. *Michelianus.* Italy, Montpellier, Germany, and Media. *Ann.*
65. *Ciliaris.* East Indies. *Ann.*
66. *Hottentottus.* Marshy places, beside the rivers at the Cape of Good Hope.
67. *Antarcticus.* Cape of Good Hope, and in Guinea. *Peren.*
68. *Argenteus.* India.
69. *Monander.* India.
70. *Cephalotes.* India.
*71. *Multicaulis.* Britain. *Peren.*
*72. *Quadrangulus.* Carolina. } Michaux,
*73. *Tuberculosus.* Carolina. } *Flor. Bor.*
*74. *Capillaceus.* New England. } *Amer.* i. p.30.
*75. *Reptans.* Banks of the Seine.
*76. *Turgidus.* Near Meudon and Strasburg.
*77. *Fragrans.* Peru. (*Fl. Peruv.*)
*78. *Domingensis.* St Domingo.
*79. *Americanus.* Lower Carolina. (*Michaux.*)
*80. *Annuus.* Switzerland, Piedmont, and Barb.
*81. *Pubescens.* Carolina and Georgia. (*Mich.*)
*82. *Castaneus.* Florida. (*Michaux.*)
*83. *Michauxii.* Carolina. (*Michaux.*)
*84. *Compactus.* Denmark.
*85. *Plumosus.* New South Wales.

‡115. ERIOPHORUM. *Glumæ* paleaceæ, undique imbricatæ. *Cor.* 0. *Sem.* 1. lana longissima cinctum.
1. *Vaginatum.* Cold barren regions of Europe. *Peren.*
2. *Polystachyon*, or *Vulgaris* of Persoon. Europe. *Peren.*
3. *Angustifolium.* Bogs in Germany. *Peren.*
4. *Virginicum.* Virginia. *Peren.*
5. *Cyperinum.* North America.
6. *Alpinum.* European Alps. *Peren.*
*7. *Scheuchzeri.* Alps of Rhætia and Salzburg.

110. MAPANIA. Involucrum universale triphyllum. *Cal.* 6-valvis. *Cor.* 0.
1. *Sylvatica.* Wet woods of Guiana. *Peren.*

117. NARDUS. *Cal.* 0. *Cor.* 2-valvis.
1. *Stricta.* Barren soils of Europe. *Peren.*
2. *Aristata.* South of Europe. *Bien.*
3. *Indica.* Tranquebar.
4. *Ciliaris.* India.

114. MIEGIA. *Cal.* 2-valvis uniflorus. *Cor.* 2-valvis. *Nect.* 1-valve germen involvens.
1. *Maritima.* Sea sands of Cayenne and Guiana. *Peren.*
*2. *Macrosperma.* Banks of the Mississippi. (*Michaux.*)

The last species is given by Persoon, who gives the following generic character of MIEGIA. "*Stigmata* tria *Flor.* Polygami, paniculati. *Cal.* multiflorus 2-valvis, brevis, inæqualis. *Cor.* 2-valvis, (mutica.) *Appendices* bini, lato-lanceolati, acuti, plani in utroque flore. *Sem.* nudum, maximum."

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Triand

109. KYLLINGIA. *Ament.* ovatum seu oblongum imbricatum. *Cal.* 2-valvis. *Cor.* 2-valvis.
1. *Monocephala.* Wet parts of the East Indies, America and New Holland. *Peren.*
2. *Brevifolia.* East Indies.
3. *Triceps*, or *Nivea* of Persoon. Wet parts of America and the East Indies. *Peren.*
4. *Panicea.* India and the East.
5. *Filiformis.* Hispaniola and Jamaica.
6. *Umbellata.* East Indies.
7. *Cyperina.* East Indies.
8. *Incompleta.* Moist places in the Carraccas in South America. *Peren.*
*9. *Pumila.* North America. } Michaux,
*10. *Maculata.* Carolina. } *Flor. Amer.*
*11. *Ovularis.* Georgia and Carolina.
*12. *Intermedia.* New Holland. (Brown's *Prod.* 218.)

119. CENCHRUS. *Involucrum* laciniatum echinatum 3 s. 4-florum. *Cal.* 2-valvis, 2-florus. *Corolla* 2-valvis mutica. *Styl.* bifidus.
1. *Lappaceus.* India.
2. *Capitatus.* France and Italy. *Ann.*
3. *Echinatus.* Jamaica and Curaçoa. *Ann.*
4. *Tribuloides.* Sea coast of Virginia. *Ann.*
5. *Ciliaris.* Cape of Good Hope at the sides of fields. *Ann.*
6. *Setosus.* West Indies.
7. *Geniculatus.* Cape of Good Hope.
8. *Hordeiformis.* Cape of Good Hope and India.
9. *Purpurascens.* Japan.
10. *Frutescens.* Armenia. *Shrub.*
*11. *Caliculatus.* Babao, one of the Friendly Isles.
*12. *Spinifex.* Chili, and at Monte Video.
*13. *Rufescens.* Near Mascar, in Africa.
*14. *Inflexus.* New Holland. } Brown's *Pro-*
*15. *Australis.* New Holland. } *dromus*, p. 195.

118. LYGEUM. *Spatha* 1-phylla. *Corollæ* binæ supra idem germen. *Nux* bilocularis.
1. *Spartum.* Clayey fields of Spain. *Peren.*

116. POMMEREULLIA. *Cal.* turbinatus 2-valvis. 3 s. 4-florus; *Valvulæ* 4-fidæ dorso aristatæ. *Cor.* 2-valvis aristata.
1. *Cornucopiæ.* India.

Linnæus the younger refers this genus to Diandria Monogynia, and Persoon to Triandria Digynia.

108. FUIRENA. *Ament.* imbricatum; squamis aristatis. *Cal.* 0. *Cor.* 3-valvis; valvulis petaliformibus, obcordatis arista terminatis.
1. *Umbellata.* Surinam, India, and New Holland.
*2. *Obtusiflora.* South America. (*Vahl.*)
*3. *Squarrosa.* Georgia and Carolina. (*Mich.*)
*4. *Canescens.* Africa. (*Richard.*)
*5. *Arenosa.* New Holland. } Brown's
*6. *Glomerata.* New Holland. } *Prodrom.*

Species 16 is the *Scirpus Ciliaris* of Linnæus. See Brown's *Prodromus*, p. 220.

ORDER II. DIGYNIA.

127. PANICUM. *Cor.* 3-valvis: valvula tertia minima.
1. *Polystachyon.* India. *Bien.*
2. *Sericeum.* West Indies. *Ann.*
3. *Verticillatum.* S. of Europe, and the East. *Ann.*
4. *Helvolum.* East Indies. *Ann.*
5. *Glaucum.* East and West Indies, Italy, Germany. *Ann.*
6. *Viride.* South of Europe. *Ann.*
7. *Germanicum.* South of Europe. *Ann.*
8. *Italicum.* East and West Indies. *Ann.*
9. *Setosum.* Jamaica.
10. *Lanceolatum.* India.
11. *Stagninum.* Stagnant waters in the E. Indies.
12. *Crus Corvi.* East and West Indies, New Holland. *Ann.*
13. *Crus Galli.* Europe, Virginia, and New Holland. *Ann.*
14. *Setigerum.* China.
15. *Colonum.* Cultivated parts in India. *Ann.*
16. *Fluitans.* Madagascar, Arabia, India.
17. *Brizoides.* India.
18. *Flavidum.* Ceylon and New Holland.
19. *Dimidiatum.* India.
20. *Burmanni.* India and Italy.
21. *Hirtellum.* Shady woods of the West Indies.
22. *Pilosum.* Jamaica.
23. *Molle.* Meadows West Indies. *Peren.*
24. *Fasciculatum.* Jamaica.
25. *Chartaginense.* South America, Carthagena.
26. *Conglomeratum.* East Indies.
27. *Interruptum.* India, in stagnant water.
28. *Sanguinale.* America, South of Europe, Holland, and Media. *Ann.*
29. *Dactylon.* See the new genus CYNODON. South of Europe, the East, and New Holland. *Peren.*
30. *Umbrosum.* Shaded places in the East Indies.
31. *Filiforme.* North America.
32. *Egyptiacum.* *Ann.*
33. *Ciliare.* Java, China, and New Holland. *Ann.*
34. *Lineare.* East and West Indies.
35. *Cimicinum.* Malabar, and town of Johanna. *Ann.*
36. *Distachyon.* East Indies.
37. *Squarrosum.* East Indies. *Ann.*
38. *Hispidulum.* East Indies.
39. *Compositum.* Ceylon.
40. *Elatius.* Malabar. *Ann.*
41. *Dichotomum.* Virginia.
42. *Ramosum.* East and West Indies.
43. *Deustum.* Cape of Good Hope.
44. *Coloratum.* Cairo. *Ann.*
45. *Repens.* Barbary, Spain, and India. *Ann.*
46. *Ischæmoides.* Wet places of Malabar.
47. *Remotum.* East Indies.
48. *Aristatum.* China.
49. *Miliaceum*, or *Milium.* India. *Ann.*
50. *Antidotale.* Gardens of Malabar.
51. *Notatum.* Sumatra.
52. *Muricatum.* India.
53. *Capillare.* Virginia, Jamaica. *Ann.*
54. *Flexuosum.* India.
55. *Grossarium.* Jamaica.
56. *Maximum.* Guadaloupe. *Peren.*
57. *Nemorosum.* Jamaica, Domingo.
58. *Acuminatum.* Jamaica.
59. *Rigens.* Jamaica.
60. *Fuscum.* Jamaica.
61. *Laxum.* Jamaica.
62. *Latifolium.* North America. *Peren.*
63. *Flavescens.* Jamaica.
64. *Diffusum.* Jamaica and Hispaniola.
65. *Oryzoides.* Jamaica.
66. *Clandestinum.* Pennsylvania.
67. *Arborescens.* India. *Shrub.*
68. *Curvatum.* East Indies.
69. *Virgatum.* Virginia. *Peren.*
70. *Patens.* India.
71. *Trigonum.* India.
72. *Pallens.* Jamaica.
73. *Lanatum.* Jamaica.
74. *Arundinaceum.* Jamaica.
75. *Polygamum*, or *Jumentorum* of Persoon. West Indies. *Peren.*
76. *Glutinosum.* Jamaica.
77. *Brevifolium.* India.
78. *Radicans.* China. *Peren.*
79. *Trichoides.* Jamaica, Hispaniola.
80. *Divaricatum.* Jamaica.

*81. *Purpureum.* Tarma. (*Flor. Peruv.* i. 48.)

*82. *Muricatum.* Canada. (*Michaux*, 47.)

*83. *Paspalodes.* India.

*84. *Granulare.* Isle of France. (*Lamarck.*)

*85. *Scabrum.* Senegal. (*Lamarck.*)

*86. *Barbatum.* Isle of France. (*Lamarck.*)

*87. *Pyramidale.* Senegal, and West of America. (*Lamarck.*)

*88. *Plicatum.* Isle of France. (*Lamarck.*)

*89. *Setarium.* South America. (*Lamarck.*)

*90. *Bromoides.* Isle of France. (*Lamarck.*)

*91. *Cespitosum.* Dry pastures of Jamaica.

*92. *Loliaceum.* India. (*Lamarck.*)

*93. *Numidianum.* La Calle in the North of Africa. (*Desfontaine.*)

*94. *Læve.* St. Domingo. (*Lamarck.*)

*95. *Miliare.* India. (*Lamarck.*)

*96. *Capillaceum.* (*Lamarck.*)

*97. *Tenellum.* Sierra Leone. (*Lamarck.*)

*98. *Hirsutum.* Jamaica and Hispaniola.

*99. *Glutinosum.* South America. (*Lamarck.*)

*100. *Anceps.* Carolina.
*101. *Scoparium.* Carolina. *Ann.*
*102. *Pubescens.* Carolina.
*103. *Nitidum.* Pennsylv. and Carol.
*104. *Barbatum.* Pennsylvania.
*105. *Ramulosum.*
*106. *Melicarium.* Georgia and Car.
} See Michaux, *Fl. Bor. Ame.* 47.

*107. *Strictum.*
*108. *Gracile.*
*109. *Argenteum.*
*110. *Holosericeum.*
*111. *Polyphyllum.*
*112. *Marginatum.*
*113. *Airoules.*
*114. *Pubescens.*
*115. *Foliosum.*
*116. *Pauciflorum.*
*117. *Pygmæum.*
*118. *Minutum.*
*119. *Bicolor.*
*120. *Uncinulatum.*

Class III.
Triandria.

*121. *Effusum.*
*122. *Decompositum.*
*123. *Semialatum.*
*124. *Parviflorum.*
*125. *Striatum.*
*126. *Radiatum.*
*127. *Divaricatissimum.*
*128. *Villosum.*
*129. *Papposum.*
*130. *Tenuiflorum.*
*131. *Propinquum.*
*132. *Gibbosum.*
*133. *Paradoxum.*
*134. *Spinescens.*
*135. *Abortivum.*

Species 107—135 are all from New Holland. See Brown's *Prodr.* p. 189.

120. CORNUCOPIÆ. *Involucr.* 1-phyllum, infundibuliforme, crenatum, multiflorum. *Calyx,* 2-valvis. *Cor.* 1-valvis.
1. *Cucullatum.* Levant and the East. *Ann.*
2. *Alopecuroides.* Italy.

146. ARISTIDA. *Cal.* bivalvis. *Cor.* 1-valvis: aristis tribus terminalibus.
1. *Adscensionis.* South of Jamaica, in sandy places, and in the Island of Ascension. *Peren.*
2. *Americana.* In the warm, barren, and sandy parts of America.
3. *Gigantea.* Teneriffe.
4. *Hystrix.* Malabar, and Cape of Good Hope.
5. *Vestita.* Cape of Good Hope.
6. *Plumosa.* In Armenia. *Peren.*
7. *Capensis.* Cape of Good Hope.
8. *Setacea.* Barren parts of Malabar.
9. *Depressa.* Barren parts of Malabar.
10. *Arundinacea.* East Indies.
*11. *Vagans.* New Holland.
*12. *Ramosa.* New Holland.
*13. *Calycina.* New Holland. } See Brown's *Prodromus,* 173.
*14. *Stipoides.* New Holland.
*15. *Hygrometrica.* New Holland.
*16. *Pallens.* Chili. (*Cavanilles.*)
*17. *Dichotoma.* Carolina.
*18. *Stricta.* South Carolina. } *Michaux,* i. p. 41.
*19. *Oligantha.* Illinois.
*20. *Rigida.* Philippine Isles. (*Cavanilles.*)
*21. *Loxa.* Monte Video. (*Cavanilles.*)
*22. *Luzonensis.* Luzow, one of the Philippine Isles. (*Cavanilles.*)
*23. *Ternipes.* (*Cavanilles.*)
*24. *Murina.* Island of Mandanao. (*Cavanilles.*)
*25. *Cœrulescens.* Near Kerwan in Mount Atlas. (*Desfontaine.*)
*26. *Elatior.* Valentia. (*Cavanilles.*)
*27. *Interrupta.* Mexico. (*Cavanilles.*)
*28. *Lanata.* Armenia and Tunis. (Vahl. *Symb.*)
*29. *Pungens.* Barbary. (*Desfontaine.*)

‡ 129. ALOPECURUS. *Cal.* 2-valvis. *Cor.* 1-valvis.
1. *Indicus.* East Indies. *Ann.*
2. *Bulbosus.* Meadows of France and England. *Peren.*
3. *Pratensis.* Meadows of Europe. *Peren.*
4. *Capensis.* Cape of Good Hope.
5. *Antarcticus.* Straits of Magellan.
6. *Agrestis.* South of Europe. *Peren.*
7. *Geniculatus.* Muddy parts of Europe. *Peren.*
8. *Echinatus.* Cape of Good Hope.
*9. *Alpinus.* Scotland. *Peren.* } Smith's *Eng. Bot.*
*10. *Fulvus.* England. *Peren.*
*11. *Subaristatus.* Canada. (*Michaux.*)
*12. *Utriculata.* See PHALARIS.
*13. *Ventricosa.* France.

‡ 128. PHLEUM. *Cal.* 2-valvis, sessilis, linearis, truncatus, apice bicuspidato. *Cor.* inclusa.
1. *Pratense.* Meadows of Europe. *Peren.*
2. *Alpinum.* The Alps of Lapland and Switzerland, &c. *Peren.*
3. *Gerardi.* Top of the Alps of Carniola, Styria, Italy and France, and on the Pyrenees. *Peren.*
4. *Nodosum.* France, Switzerland, Italy, and Germany. *Peren.*
*5. *Asperum, Phalaris Viride* of Willd.
*6. *Dentatum, Phalaris Dentatum* of Willd.

Smith gives a new species of *Paniculatum,* which is the same as the PHALARIS *Aspera* of Willd.

‡ 125. PHALARIS. *Cal.* 2-valvis, carinatus, longitudine æqualis, corollam includens.
1. *Canariensis.* Canary Islands. *Ann.*
2. *Aquatica.* Tiber, Egypt. *Ann.*
3. *Capensis.* Cape of Good Hope. *Ann.*
4. *Bulbosa.* A variety of species 14. Spain and the East. *Peren.*
5. *Nodosa.* South of Europe.
6. *Dentata, Phleum Dent.* of Persoon. Cape of Good Hope. *Ann.*
7. *Phleoides,* the *Phleum Phalaris* of Persoon. Europe. *Ann.*
8. *Arenaria.* Sandy parts of Europe. *Ann.*
9. *Aspera.* England, France, Italy, Sicily. *Ann.*
10. *Utriculata,* the *Alopecurus Utriculata* of Persoon. Italy, England. *Ann.*
11. *Paradoxa.* In the East. *Ann.*
12. *Hispida.* Japan.
*13. *Arundinacea,* the *Arundo Colorata* of Willd.
*14. *Sativa.* Italy and the East.
*15. *Tuberosa.* Spain. (*Cavanilles.*)
*16. *Alpina.* Alps. (Willd. *N. Act. Berol.* 3.)
*17. *Crucæformis,* (*Cynosurus Cruciformis* of Willdenow.
*18. *Villosa.* Carolina. (*Michaux,* 43.)

126. PASPALUM. *Cal.* 2-valvis, orbiculatus. *Cor.* ejusdem magnitudinis. Stigmata penicilliformia.
1. *Dissectum.* Warmer parts of America. *Ann.*
2. *Scrobiculatum.* East Indies. *Peren.*
3. *Villosum.* Japan, near Nagasaki.
4. *Virgatum.* Jamaica. *Peren.*
5. *Paniculatum.* Jamaica. *Ann.*
6. *Stoloniferum.* Peru. *Peren.*
7. *Repens.* Surinam. *Peren.*
8. *Hirsutum.* China.
9. *Kora.* India.
10. *Longiflorum.* Sides of fields, Malabar.
11. *Distichum.* Damp grassy places in Jamaica. *Bien.*
12. *Conjugatum.* Jamaica and Surinam.
13. *Vaginatum.* Jamaica.
14. *Filiforme.* Jamaica.
15. *Decumbens.* Jamaica.
*16. *Floridanum.* Florida and Georgia. } *Michaux,* i. p. 44.
*17. *Plicatum.*
*18. *Strictum.* Antilles, and St Domingo.
*19. *Polystachyum.* (Like species 2.) New Holland.

ss III.
ndria.

*20. *Orbiculare.* New Holland.
*21. *Pubescens.* New Holland.
*22. *Littorale.* New Holland.

Species 19—22, see Brown's *Prodromus*, p. 188.

‡130. MILIUM. *Cal.* 2-valvis, uniflorus: valvulis subæqualibus. *Corolla* brevissima. Stigmata penicilliformia.

1. *Capense.* Cape of Good Hope.
2. *Punctatum.* Moist grassy parts of Jamaica.
3. *Lendigerum.* New Holland, Montpellier, and Portugal. *Ann.*
4. *Compressum.* Jamaica and West Indies. *Peren.*
5. *Digitatum.* Jamaica. *Ann.*
6. *Paniceum.* Jamaica.
7. *Effusum.* Shady groves of Europe. *Peren.*
8. *Confertum.* Woods of Switzerland. *Peren.*
9. *Globosum.* Japan.
10. *Paradoxum.* South of France and Carniola. *Ann.*
11. *Villosum.* Jamaica. *Ann.*
12. *Ramosum.* East Indies.
*13. *Nigricans.* Pillao and Cuchero. (*Flor. Peruv.*)
*14. *Cimicinum.* Malabar and Jamaica. *Ann.*
*15. *Cærulescens.* Fissures of rocks in Mount Atlas, and near St Cruz. (*Desfont.*)

According to Mr Brown, Species 2 ought to form a new genus. *Prodromus*, p. 188.

‡131. AGROSTIS. *Cal.* 2-valvis, uniflorus, corolla, paulo minor. *Stigmata* longitudinaliter hispida.

1. *Spica Venti.* Europe, among the growing corns. *Ann.*
2. *Interrupta.* France, Italy, Switzerland, Carniola, Germany. *Ann.*
3. *Spicæformis.* Teneriffe.
4. *Hirsuta.* Teneriffe.
5. *Panicea.* England, damp parts of France. *Ann.*
6. *Miliacea.* Spain, Siberia, Montpellier. *Peren.*
7. *Tenuiflora.* North America. *Peren.*
8. *Bromoides.* Montpellier. *Peren.*
9. *Arundinacea.* Europe. *Peren.*
10. *Calamogrostis.* Switzerland, mountains near Verona, Germany. *Peren.*
11. *Serotina.* Near Verona.
12. *Rubra.* England and Sweden.
13. *Stricta.* North America.
14. *Ovata.* New Zealand, New Holland, and Van Diemen's Island.
15. *Matrella.* Sandy parts of Malabar. See new genus MATRELLA.
16. *Canina.* Europe in moist pastures. *Peren.*
17. *Alpina.* Alps of Switzerland, Bavaria, Silesia, Bohemia, Carniola, and Saxony. *Ann.*
18. *Rupestris.* Rocky parts of Switzerland, Bohemia, and Italy. *Ann.*
19. *Compressa.* Germany.
20. *Vinealis.* Fields and hills of Germany, and at the banks of rivers. *Peren.*
21. *Stolonifera.* Europe.
22. *Capillaris.* Mountains in Lapland. *Ann.*
23. *Hispida*, or *Vulgaris.* Meadows of Europe. *Peren.*
24. *Scabra.* North America.
25. *Anomala.* Near Hudson's Bay. See new genus TRICHODIUM. *Peren.*
26. *Diandra.* India.
27. *Sylvatica*, a variety of *Hispida* (*Persoon*). Woods of England and the Palatinate.
28. *Alba.* Marshes of Europe. *Peren.*
29. *Pumila*, a variety of *Hispida*, (*Persoon*). Sweden, Iceland, Switzerland, and Germany. *Peren.*
30. *Ciliata.* Japan.
31. *Capensis.* Cape of Good Hope.
32. *Tremula.* Groves of India. *Peren.*
33. *Minima.* Germany and France. See the new genus STURMIA.
34. *Virginica.* Virginia and Jamaica on the clayey shores. *Peren.*
35. *Pungens.* Sea coasts of Spain, south of France, north of Africa, and the east. *Peren.*
36. *Spicata.* Sandy deserts of Arabia. *Peren.*
37. *Mexicana.* Warm parts of America.
38. *Verticillata.* S. of France in wet saltplaces.
39. *Coromandelina.* Dry hard soils of Malabar and Arabia.
40. *Tenacissima.* East Indies. *Peren.*
41. *Purpurascens.* Jamaica.
42. *Indica.* Moist places in the West Indies. *Ann.*
43. *Procera.* Wet grassy parts of Malabar.
44. *Linearis.* India, sides of the high ways in the rainy season.
45. *Lenta.* India.
46. *Stellata.* Island of St Helena.
*47. *Littoralis.* England. *Peren.* } Smith's
*48. *Setacea.* Britain. *Peren.* } *Flor. Brit.*
*49. *Parviflora.* Van Diemen's Island.
*50. *Crinita.* New Holland and Van Diemen's Isl.
*51. *Sciurea.* New Holland and Van Diemen's Isl.
*52. *Rara.* New Holland.
*53. *Quadriseta.* Van Diemen's Island.
*54. *Cylindrica.* New Holland.
*55. *Montana.* Van Diemen's Island.
*56. *Lobata.* Van Diemen's Island.
*57. *Billardieri.* New Holland and Van Diemen's Island.
*58. *Æmula.* New Holland and Van Diem. Isl.
*59. *Plebeia.* New Holland.
*60. *Decipiens.* New Holland.
*61. *Pyramidata.* South America.
*62. *Barbata.* South America.
*63. *Maritima.* Narbonne. *Shrub.*

Species 51 is the *Anthoxanthum Crinitum* of Willdenow; species 54 is the *Avena Quadriseta* of Labillardiere; and species 58 is the *Avena Filiformis* of the same naturalist. See Brown's *Prodromus*, 172, for the species 49—60; and Lamarck, *Illustr.* for those from 61—63.

‡137. DACTYLIS. *Cal.* 2-valvis, compressus; altera valvula majore carinata.

1. *Cynosuroides.* Virginia and Canada. *Peren.*
2. *Stricta.* Shores of England and Portugal. *Peren.*
3. *Cespitosa.* New Year's Day Islands. *Peren.*
4. *Glomerata.* Europe. *Peren.*
5. *Littoralis.* South of France, Spain, lake of Sisara, at Tunis. *Peren.*

Class III.
Triandria.

6. *Lævis.* Cape of Good Hope.
7. *Villosa.* Cape of Good Hope.
8. *Serrata.* Cape of Good Hope.
9. *Ciliaris.* Cape of Good Hope.
10. *Hispida.* Cape of Good Hope.
11. *Geniculata.* Java.
12. *Brevifolia.* Malabar. *Peren.*
13. *Lagopoides.* Fields of Malabar. *Peren.*
14. *Pungens.* Near Mascar in Barbary.
* 15. *Patens.* North America. *Peren.*
* 16. *Spicata.* Malabar. (Willd. *N. Act. Berol.* 3.)
* 17. *Repens.* Coast of the Desert in Africa.

‡ 141. Stipa. *Cal.* 2-valvis, uniflorus. *Cor.* valvula exteriore terminali, basi articulata.

1. *Pennata.* England, Austria, France, Sweden, Germany. *Peren.*
2. *Juncea.* Switzerland and France. *Bien.*
3. *Capillata.* Germany and France. *Peren.*
4. *Aristella.* Montpellier. *Peren.*
5. *Paleacea.* Tunis, Egypt, and Guinea.
6. *Tenacissima.* Sandy hills of Spain.
7. *Capensis.* Cape of Good Hope. *Peren.*
8. *Spicata.* Cape of Good Hope. *Peren.*
9. *Bicolor.* Brazil, Monte Video.
10. *Avenacea.* Virginia.
11. *Membranacea.* Spain.
* 12. *Mollis.* New South Wales.
* 13. *Semibarbata.* Van Diemen's Island.
* 14. *Pubescens.* New South Wales.
* 15. *Setacea.* New South Wales, and Van Diemen's Island.
* 16. *Elegantissima.* Van Diemen's Island.
* 17. *Flavescens.* New South Wales, and Van Diemen's Island.
* 18. *Compressa.* New Holland.
* 19. *Micrantha.* New South Wales.
* 20. *Barbata.* Hills of Barbary. (*Desfont.*)
* 21. *Humilis.* South America. (*Cavanilles.*)
* 22. *Tortilis.* Barbary. *Ann.* (*Desfont.*)
* 23. *Juncea.* Barbary. *Peren.* (*Desfont.*)
* 24. *Eminens.* Mexico. (*Cavanilles.*)
* 25. *Virginica.* Virginia and Carolina. (*Michaux.*)
* 26. *Sibirica,* the *Avena Sibirica* of Linn.
* 27. *Parviflora.* Barbary. (*Desfont.*)

See Brown's *Prodr.* p. 174.; Labillard. *Nov. Hol.* i. p. 24. ; and Cavanilles, *Icones*, &c. p. 42.

143. Lagurus. *Cal.* 2-valvis : arista villosa. *Cor.* petalo exteriore aristis 2 terminalibus : tertia dorsali retorta.

1. *Ovatus.* Guernsey, Italy, France, Sicily, Portugal. *Ann.*

122. Saccharum. *Cal.* 2-valvis lanugine longa involucratus. *Cor.* 2-valvis.

1. *Teneriffæ.* Teneriffe.
2. *Spontaneum.* Watery parts of Malabar. *Peren.*
3. *Japonicum.* Japan. *Peren.*
4. *Officinarum.* India, in inundated parts. *Per.*
5. *Polystachyon.* Island of St Christophers.
6. *Arundinaceum.* Tranquebar. *Peren.*
7. *Benghalense.* Bengal.
8. *Repens.* Guinea. *Peren.*
9. *Ravennæ.* Italy.
10. *Cylindricum.* Montpellier, Sicily, Candia, Smyrna, Africa, and India. *Peren.*
11. *Thunbergii.* East Indies.
* 12. *Irritans.* New Holland. } Brown's *Prodromus*, p. 203.
* 13. *Fulvum.* New Holland. }

See the new genera Imperata and Erianthus.

121. Muhlenbergia. *Cal.* 1-valvis minutus lateralis. *Cor.* 2-valvis.

1. *Diffusa.* Kentucky, in N. Amer. *Peren.*
* 2. *Aristata.* Georgia and Carolina. *Peren.*

123. Perotis. *Cal.* nullus. *Cor.* bivalvis : valvulæ æquales aristatæ, lanugine involucrata.

1. *Latifolia.* Stony parts of India. *Ann.*
2. *Polystachya.* India.
* 3. *Rara.* New Holland.

Species 1. is the same as the *Anthoxanthum Indicum* of Willdenow. See Brown's *Prodromus*, p. 172.

124. Leersia. *Cal.* 0. Corolla 2-valvis, clausa.

1. *Oryzoides.* Marshy parts of Germany, Switzerland, Austria, Italy, and Persia. *Peren.*
2. *Virginica.* North America. *Peren.*
3. *Monandra.* Groves of Jamaica.
4. *Hexandra.* Watery parts of Jamaica.
* 5. *Lenticularis.* North America. (*Michaux.*)
* 6. *Australis.* New Holland.

Sect. II. *Flowers scattered, two in each Calyx.*

‡ 132. Aira. *Cal.* 2-valvis, 2-florus. *Flosculi* absque interjecto rudimento.

1. *Arundinacea.* In the East.
2. *Minuta.* Spain. *Ann.*
3. *Aquatica.* Europe, in wet pastures. *Peren.*
4. *Involucrata.* Barren hills of Spain. *Ann.*
5. *Pubescens.* Sea sands of the south of France, Italy, and N. Africa. *Ann.*
6. *Subspicata.* Switzerland, and mountains of Lapland. *Peren.*
7. *Cespitosa.* Cultivated and fertile meadows of Europe.
8. *Flexuosa.* Stony and rocky parts of Europe. *Peren.*
9. *Montana.* European Alps. *Peren.*
10. *Alpina.* Mountains of Lapland, Germany.
11. *Antarctica.* New Zealand.
12. *Canescens.* In Denmark, and south of Europe. *Peren.*
13. *Chinensis.* China.
14. *Præcox.* Sandy and inundated fields in the south of Europe. *Ann.*
15. *Caryophyllea.* England, Germany, and France. *Ann.*
16. *Setacea.*
* 17. *Aristata.* England. *Peren.*
* 18. *Cærulea.*
* 19. *Melicoides.* Canada. } See Michaux, *Flor. Bor. Ame.* p. 62.
* 20. *Obtusata.* Carolina. }
* 21. *Ambigua.* Lake Mistassins. }

Species 17. is the *Poa Aristata* of Willdenow. See Smith's *Flor. Britan.* i. p. 83. "Airæ genus," says Mr Brown, "mere artificiale est, plantas complectens ad genera tria vel quatuor diversa accedentes seu omnino pertinentes, vix ullas tamen charactere *Eriachnes* respondentes." *Prodromus*, p. 183.

‡ 133. Melica. *Cal.* 2-valvis, 2-florus. *Rudimentum* floris inter flosculos.

Class III.
Triandria.

1. *Ciliata.* Barren hills in Europe. *Peren.*
2. *Gigantea.* Cape of Good Hope. *Peren.*
3. *Geniculata.* Cape of Good Hope.
4. *Decumbens.* Cape of Good Hope.
5. *Racemosa.* Cape of Good Hope.
6. *Nutans.* In the rocks of the cold parts of Europe. *Peren.*
7. *Uniflora* Shady groves in Switzerland, Germany, Sweden and France. *Peren.*
8. *Ramosa.* Cape of Good Hope. *Peren.*
9. *Capensis.* Cape of Good Hope.
10. *Minuta.* Italy.
11. *Cærulea.* Wet pastures of Europe. *Peren.*
12. *Papilionacea.* Brazil.
13. *Altissima.* Hungary, Siberia, and Canada. *Peren.*
* 14. *Setacea.* France, near Beaucaire.
* 15. *Aspera.* Fissures of rocks in Mount Atlas.
* 16. *Pyramidalis.* Barbary, and S. of Europe.
* 17. *Laxiflora.* Chili. (Cavanilles, *Icon.*)
* 18. *Glabra.* Virginia and Florida. (*Michaux.*)
* 19. *Aurantiaca.* Monte Video South America. (*Cavanilles.*)
* 20. *Violacea.* Chili. (*Cavanilles.*)
* 21. *Rigida.* Monte Video. (*Cavanilles.*)

SECT. III. *Flowers scattered, and many in each Calyx.*

136. UNIOLA. *Cal.* multivalvis. *Spicula* ovata carinata.
1. *Paniculata.* Carolina.
2. *Mucronata.* India.
3. *Spicata.* Coasts of North America.
* 4. *Latifolia.* Alleghany Mountains. (*Michaux.*)

‡ 135. BRIZA. *Cal.* 2-valvis, multiflorus. *Spicula* disticha valvulis cordatis, obtusis: interiore minuta.
1. *Minor.* Switzerland, Italy, Germany. *Ann.*
2. *Virens.* In the East, and Spain. *Ann.*
3. *Media.* In the dry meadows of Europe. *Peren.*
4. *Geniculata.* Cape of Good Hope.
5. *Capensis.* See POA, species 92. Cape of Good Hope.
6. *Maxima.* Italy, Portugal, Cape of Good Hope, and India. *Ann.*
7. *Eragrostis.* See POA, species 93. South of Europe. *Ann.*
* 8. *Canadensis.* Canada. (*Michaux.*)
* 9. *Erecta.* Monte Video. (*Lamarck.*)
* 10. *Rubra.* India. (*Lamarck.*)

‡ 124. POA. *Cal.* 2-valvis, multiflorus. *Spicula* ovata: valvulis margine scariosis acutiusculis.
1. *Aquatica.* Banks of rivers in Europe. *Peren.*
2. *Alpina.* Mountains of Lapland and Switzerland. *Peren.*
3. *Laxa.* Alps of Switzerland, Bohemia, and Silesia. *Peren.*
4. *Biflora.* India.
5. *Hirta.* Japan.
6. *Trivialis.* Europe, in pastures. *Peren.*
7. *Angustifolia.* Europe. *Peren.*
8. *Pratensis.* Meadows of Europe. *Peren.*
9. *Ferruginea.* Japan.
10. *Cilianensis.* India.
11. *Nervata.* North America.
12. *Trinervata.* Woods of Bavaria, Bohemia, Silesia, and the Palatinate. *Peren.*
13. *Sudetica.* In the mountains of Silesia, marshes of Hanover. *Peren.*
14. *Rubens.* Lower Hesse. *Peren.*
15. *Anceps.* New Zealand.
16. *Annua.* Europe, on the road sides. *Ann.*
17. *Flava.* Virginia.
18. *Barbata.* Japan. *Ann.*
19. *Pilosa.* Italy and Carniola.
20. *Palustris.* Humid places of Switzerland, Italy, and Germany.
21. *Glutinosa.* Jamaica.
22. *Prolifera.* Caribbee Islands.
23. *Amabilis.* India.
24. *Eragrostis.* Switzerland and Italy upon walls, in Siberia.
25. *Badensis*, or *Thermalis* of Persoon. On rocks near the warm springs of Baden, and at Mansfeld. *Peren.*
26. *Cynosuroides.* Dry parts of India and Egypt.
27. *Unioloides.* India.
28. *Racemosa.* Cape of Good Hope.
29. *Cyperoides.* Cape of Good Hope.
30. *Verticillata.* In Spain. *Ann.*
31. *Abyssinica.* Abyssinia. *Ann.*
32. *Capillaris.* Virginia, Canada, Jamaica. *Ann.*
33. *Japonica.* Japan.
34. *Malabarica.* Sandy parts of India.
35. *Chinensis.* India.
36. *Punctata.* Malabar.
37. *Nutans.* Sides of fields in India.
38. *Tenella.* India. *Ann.*
39. *Maritima.* Coasts of England, France, Germany, and Denmark. *Peren.*
40. *Rigida.* Dry places of France, England, and Germany. *Ann.*
41. *Spinosa.* Cape of Good Hope. *Peren.*
42. *Compressa.* Europe and North America, on the walls of houses, &c. *Peren.*
43. *Sarmentosa.* Cape of Good Hope. *Peren.*
44. *Striata.* Cape of Good Hope and Virginia. *Peren.*
45. *Amboinensis.* India.
46. *Viscosa.* Malabar. *Peren.*
47. *Nemoralis.* Europe, at the foot of mountains. *Peren.*
48. *Contracta.* India.
49. *Filiformis.* Cape of Good Hope.
50. *Bulbosa.* France, Germany, Switzerland, Spain, in the East, and Sweden. *Peren.*
51. *Disticha.* On the Alps of Carinthia, Switzerland, and Italy. *Peren.*
52. *Bifaria.* East Indies.
53. *Bromoides.* Lima?
54. *Spicata.* Portugal.
55. *Distans.* Austria. *Peren.*
56. *Divaricata.* Montpellier. *Ann.*
57. *Cristata.* See the new genus KOELERIA. Germany, England, France, and Switzerland, in dry places. *Peren.*
58. *Peruviana.* Peru. *Ann.*

5. *Tenax.* Dry parts in the neighbourhood of Tunis. *Peren.*
6. *Karka.* East Indies. See the new genus Trichoon.
7. *Conspicua.* New Zealand.
8. *Epigejos.* Dry hills of Europe. *Peren.*
9. *Calamagrostis.* Grassy marshes of Europe. *Peren.*
10. *Colorata.* Damp places and lakes of Europe. *Peren.*
11. *Arenaria.* Sandy shores of America and Europe. *Peren.*
* 12. *Mauritanica.* Algiers. *Peren.* (*Desfont.*)
* 13. *Festucoides.* Hills of Barbary. *Peren.* (*Desfont.*)
* 14. *Sagittata.* Guiana and St Domingo.
* 15. *Stricta.* Near Mecklenburgh.
* 16. *Bicolor.* Near La Calle. *Peren.* (*Desf.*)

145. Pappophorum. *Cal.* 2-valvis, 2-florus. *Cor.* 2-valvis multiaristata.
1. *Alopecuroideum.* Ditches of the island of Spanish Town America. *Peren.*
*2. *Nigricans.* * 4. *Purpurascens.*
* 3. *Pallidum.* * 5. *Gracile.*

Species 2, 3, 4, 5, from New Holland.

The species from New Holland have 9 feathery aristæ, while the American species has 13 toothed aristæ.

Mr Brown has reformed this genus on account of the *Echinaria* of Desfontaines, and the *Pappophorus Squarrosus*, (Russel's *Aleppo*, ii. p. 344,) which forms a new genus. His reformed generic character, is " *Gluma* biflora (cum rudimento 3tii vel 4ti,) bivalvis, æqualis. *Perianth.* bivalve: valvula exterior apice multiaristata aristis (9—13) similibus, dorso simplici: interior mutica. *Flosculus secundus* pedicellatus neuter."

153. Lappago. *Cal.* subtrivalvis. *Cor.* 2-valvis resapinata.
1. *Racemosa*, or *Mucronata* of Persoon. The coasts of S. Europe, Arabia, and Malabar. *Ann.*

Sect. IV. *Flowers spiked, on an awl-shaped Receptacle.*

‡ 148. Rottboellia. *Rachis* articulata teretiuscula, in pluribus filiformis. *Cal.* ovato-lanceolatus planus uni-vel bivalvis. *Flosculi* alterni in rachi flexuosa.
1. *Incurvata.* Sea coasts of Europe.
2. *Filiformis.* See the new genus Lepturus. South of Europe. *Peren.*
3. *Cylindrica.* See the new genus Lepturus. South of Europe.
4. *Thomaca.* See the new genus Lepturus. Tranquebar, at Mount St Thomas's.
5. *Repens.* See the new genus Lepturus. Islands of the Pacific Ocean.
6. *Lævis.* Tranquebar.
7. *Pilosa.* Malabar.
8. *Compressa.* See the new genus Hemarthria. New Holland, India.
9. *Hirsuta.* Egypt. *Peren.*
10. *Cymbachne.* Bengal.
11. *Cœlorachis.* Island of Tanna.
12. *Dimidiata.* Sandy parts of India.
13. *Exaltata.* India.
14. *Corymbosa.* See the new genus Ophiurus. Malabar in ditches, New Holland.
15. *Muricata.* East Indies.
16. *Sanguinea.* China.
* 17. *Biflora.* Hungary. *Ann.*
* 18. *Monandra.* Madrid. *Ann.* (*Cavanilles.*)
* 19. *Setacea.* Vallies of India. The *Nardus Indica* of Linnæus. See the new genus Microchloa.
* 20. *Fasciculata.* La Calle. *Peren* (*Desfont.*)
21. *Formosa.* New Holland. (*Brown.*)

‡ 150. Secale. *Cal.* oppositus, 2-valvis, 2-florus, solitarius.
1. *Cereale.* Candia. *Ann. Bien.*
2. *Villosum.* South of Europe and in the East. *Ann.*
3. *Orientale.* Archipelago.
4. *Creticum.* Candia.
* 5. *Pungens.* *Triticum Squarrosum?* Egypt.

‡ 152. Triticum. *Cal.* bivalvis, solitarius, subtriflorus. *Flos.* obtusiusculus obtusus.
1. *Æstivum*, or *Sativum.* In the plains at Borchiros. *Ann.*
2. *Hybernum.* *Bien.*
3. *Compositum.* Egypt. *Ann.*
4. *Turgidum*, a variety of Sp. 52? *Bien.*
5. *Polonicum.* *Ann.*
6. *Spelta.* *Bien.*
7. *Monococcum.* *Ann.*
8. *Hispanicum.* Spain. *Ann.*
9. *Prostratum*, the *Secale Prostratum* of Persoon. In the driest parts of the desarts of the Caspian. *Ann.*
10. *Pumilum*, given under *Secale* by Persoon. Siberia.
11. *Junceum.* South of Europe and in the East. *Peren.*
12. *Distichum.* Cape of Good Hope.
13. *Repens.* Cultivated parts of Europe. *Peren.*
14. *Maritimum.* Sea coasts of England and France.
15. *Tenellum.* Montpellier and Switzerland. *Ann.*
16. *Unioloides.* Sea coasts of Italy, Sicily, and Barbary. *Peren.*
17. *Loliaceum.* England. *Ann.*
18. *Unilaterale.* Sea coasts of Italy, and south of France.
* 19. *Caninum.* Britain. *Bien.*
* 20. *Scabrum.* New South Wales and Van Diemen's Island.
* 21. *Pectinatum.* Van Diemen's Island.
* 22. *Cristatum.* *Bromus Cristatus?*
* 23. *Fragile.* *Peren.* (*Roth.*)
* 24. *Nigricans.* Shores of Normandy.
* 25. *Caudatum.* Switzerland.
* 26. *Lolioides.* France.

Sp. 19. is the *Elymus Caninus* of Willdenow, and Sp. 20, 21, are ranked by Labillardiere under the genus Festuca. See Brown's *Prodromus*, p. 178.

‡ 151. Hordeum. *Cal.* lateralis, bivalvis, uniflorus, ternus.
1. *Vulgare.* Sicily and Russia. *Ann. Bien.*

ass III.
andria.

2. *Hexastichon.* *Ann.*
3. *Distichon.* Banks of R. Samara in Tartary. *Ann.*
4. *Zeocriton.* *Ann.*
5. *Bulbosum.* Italy and the East. *Peren.*
6. *Nodosum.* England and India.
7. *Murinum.* Europe. *Ann.*
8. *Secalinum,* or *Pratense* of Dr Smith. Meadows of Europe. *Ann.*
9. *Maritimum.* Sea coasts of Germany, England, Italy, Greece, and Barbary. *Peren.*
10. *Jubatum.* Smyrna. *Ann.*
* 11. *Strictum.* Dry plains of Tunis. *Peren.*
* 12. *Rigidum.* Duchy of Oldenburg.
* 13. *Hystrix.* Spain. *Ann.* (*Roth.*)

‡ 149. ELYMUS. *Cal.* lateralis, bivalvis, aggregatus, multiflorus.
1. *Arenarius.* Sea shores of Europe. *Peren.*
2. *Giganteus,* the *Racemosus* of Lamarck.
3. *Sibiricus.* Siberia. *Peren.*
4. *Tener.* Siberia.
5. *Philadelphicus.* Philadelphia. *Peren.*
6. *Canadensis.* Canada. *Peren.*
7. *Caninus,* see TRITICUM. Europe. *Peren.*
8. *Virginicus.* Virginia. *Peren.*
9. *Striatus.* North America.
10. *Europeus.* Woods of Germany and Switzerland. *Peren.*
11. *Caput Medusæ.* Sea coasts of Spain and Portugal.
12. *Hystrix.* In the East. *Ann.*
* 13. *Geniculatus.* Shores of England. *Peren.*

‡ 147. LOLIUM. *Cal.* 1-phyllus, fixus, multiflorus.
1. *Perenne.* Europe. *Peren.*
2. *Tenue.* France and Germany. *Peren.*
3. *Temulentum.* Europe, among barley and flax. *Ann.*
4. *Maximum.* Jamaica. *Ann.*
5. *Distachyon.* Malabar.
* 6. *Arvense.* England. *Ann.*
* 7. *Multiflorum* Among growing corn. (*Lam.*)

‡ 138. CYNOSURUS. *Cal.* 2-valvis, multiflorus; *Recept.* proprium unilaterale, foliaceum.
1. *Cristatus.* Meadows of Europe. *Peren.*
2. *Falcatus.* Cape of Good Hope. *Peren.*
3. *Echinatus.* South of Europe and the East. *Ann.*
4. *Erucæformis.* Siberia, Russia, south of Europe, and Hudson's Bay. *Peren.*
5. *Paniculatus.* Cape of Good Hope.
6. *Lima.* Spain. *Ann.*
7. *Durus.* South of Europe Thuringia. *Ann.*
8. *Retroflexus.* East Indies.
9. *Sphærocephalus.* Mountains of Carinthia and Italy. *Peren.*
10. *Cœruleus.* Pastures of Europe. *Peren.*
11. *Uniolæ.* Cape of Good Hope.
12. *Filiformis.* India.
13. *Monastachyos.* East Indies.
14. *Coracanus.* India. *Ann.*
15. *Floccifolius.* Arabia.
16. *Penicillatus.* East Indies.
17. *Parpaloides.* Cape of Good Hope.
18. *Ægyptius.* Africa, Asia, America. *Ann.*
19. *Indicus.* India. *Ann.*
20. *Virgatus.* Jamaica. *Peren.*
21. *Aureus.* Among stones in the south of Europe, and in the East. *Ann.*
* 22. *Effusus.* Meadows of Portugal. (Link, *Bot. Journ.* 315.)
* 23. *Elegans.* Algiers. (Desfontaine, *Atl.* i. 82.)

Class III.
Triandria.

ORDER III. TRIGYNIA.

SECT. I. *Flowers inserted below the Germen.*

‡ 157. HOLOSTEUM. *Cal.* 5-phyllus. *Petala* 5. *Caps.* unilocularis, subcylindracea, apice dehiscens.
1. *Cordatum.* Jamaica, Surinam.
2. *Diandrum.* Jamaica. *Ann.*
3. *Succulentum.* New York.
4. *Hirsutum.* Malabar.
5. *Umbellatum.* South of Europe. *Ann.*

‡ 159. POLYCARPON. *Cal.* 5-phyllus. *Petala* 5, minima, ovata. *Caps.* 1-locularis, 4-valvis.
1. *Tetraphyllum.* Italy, Istria, and France. *Ann.*
* 2. *Diphyllum.* Near Puig in Spain. (*Cavan.*)
* 3. *Stipulifidum.* Dry sandy parts of Carolina. (*Michaux.*)

Sp. 3. might perhaps form a distinct genus, comprehending HOLOSTEUM *Cordatum,* and *Diandrum.* See Persoon's *Synopsis,* v. i. p. 111.

164. LECHEA. *Cal.* 3-phyllus. *Petala* 3, linearia. *Capsula* 3-locularis, 3-valvis: valvulis totidem interioribus. *Sem.* 1.
1. *Minor.* Woods of Canada. *Peren.*
2. *Major.* Dry parts of Canada and Carolina.
3. *Verticillata.* East Indies. *Peren.*
* 4. *Thymifolia.* Carolina. (*Michaux.*)
* 5. *Racemosa.* Virginia. (*Michaux.*)
* 6. *Tenuifolia.* At the riv. Santee. (*Michaux.*)

‡ 154. ERIOCAULON. *Cal.* communis, capitulum imbricatum. *Petala* 3, æqualia. *Stamina* supra germen.
1. *Triangulare.* Brasil.
2. *Quinquangulare.* India. *Peren.*
3. *Sexangulare.* India. *Peren.*
4. *Setaceum.* India.
5. *Decangulare.* Marshes of N. America.
6. *Repens.* Island of Bourbon.
7. *Fasciculatum.* Guiana.
8. *Umbellatum.* Guiana.
* 9. *Septangulare.* Scotland and Ireland. *Peren.*
* 10. *Pubescens.* India and Madagascar. (*Lam.*)
* 11. *Australe.*
* 12. *Smithii.*
* 13. *Pallidum.*
* 14. *Nigricans.*
* 15. *Nanum.*
* 16. *Cinereum.*
* 17. *Pusillum.*
* 18. *Scariosum.*
* 19. *Fistulosum.*
* 20. *Depressum.*
* 21. *Deustum.*

The last 11 species are given by Mr Brown, with the following generic character.—*Capitulum* androgynum: *Squamis* unifloris, extimis sæpius vacuis involucrantibus. *Perianthium* duplici serie 4—6-phyllum.

MASC. In disco capituli. *Perianth.* foliolis interioribus infra connatis altiusve insertis. *Stam.* 4—6. *Antheræ* biloculares.

FEM. in ambitu capituli. *Perianth.* foliolis interioribus distinctis. *Stylus* 1. *Stigmata* 2—3. *Capsula* 2—3-locularis, 2—3-loba, angulis sa-

Class III. Triandria.

lientibus dehiscens. *Semina* solitaria. (*Prodromus*, 253.)

155. Montia. *Cal.* 2-phyllus. *Cor.* 1-petala, irregularis. *Caps.* 1-locularis, 3-valvis.

1. *Fontana.* In Europe beside springs. *Ann.*

161. Mollugo. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 3-locularis, trivalvis.

1. *Oppositifolia.* Ceylon.
2. *Stricta.* Africa. *Ann.*
3. *Hirta.* Cape of Good Hope. *Ann.*
4. *Pentaphylla.* Ceylon.
5. *Verticillata.* Virginia. *Ann.*

*6. *Radiata.* Wet parts of Conception and Chili. (*Flor. Peruv.*)

162. Minuartia. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 1-locularis, 3-valvis. *Semina* nonnulla.

1. *Dichotoma.* Spain. *Ann.*
2. *Campestris.* Hills of Spain. *Ann.*
3. *Montana.* High hills of Spain. *Ann.*

163. Queria. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 1-locularis. *Sem.* 1.

1. *Hispanica.* Spain. *Ann.*
2. *Canadensis.* Canada. Virginia. *Peren.*
3. *Trichotoma.* Japan.

158. Koenigia. *Cal.* 3-phyllus. *Cor.* nulla. *Sem.* 1. ovatum nudum.

1. *Islandica.* Wet parts of the island of Iceland. *Ann.*

Sect. II. *Flowers inserted above the Germen.*

160. Donatia. *Cal.* 3-phyllus. *Cor.* polypetala.

1. *Fascicularis.* Rocky and wet parts of Terra del Fuego, forming very thick turfs. *Per.*

156. Proserpinacæ. *Cal.* 3-partitus, superus. *Cor.* 0. *Nux* trilocularis.

1. *Palustris.* Marshes of Virginia.

NEW GENERA.

New Genera.

Order I. Monogynia.

I. Trichonema. *Spatha* 2-valvis. *Cor.* tubus brevissimus: limbus æqualis, regularis. *Filam.* pubescentia. *Stigmata* 3-bipartita. (*Ker.*)

1. *Bulbocodium.* South of Europe and Barbary. *Peren.*
2. *Cruciatum.* Cape of Good Hope. *Peren.*

See Ker in the *Annals of Botany*, i. p. 222. These two species are given with the same name by Willdenow, under the genus Ixia.

II. Geissorhiza. *Spatha* 2-valvis. *Cor.* tubulosa: limbus 6-partitus, patens, regularis. *Stylus* inclinatus. *Caps.* ovalis, trigona. (*Ker.*)

1. *Rochensis.* Cape of Good Hope. *Peren.*
2. *Secunda.* Cape of Good Hope. *Peren.*
3. *Obtusata.* Cape of Good Hope. *Peren.*
4. *Excisa.* Cape of Good Hope. *Peren.*

See Ker in the *Annals of Botany*, i. p. 223. and *Hort. Kew.* vol. i. p. 83. The three last species are given, with the same specific name, by Willdenow, under the genus Ixia.

III. Hesperanthia. *Spatha* 2-valvis. *Cor.* tubulosa: limbus 6-partitus, regularis. *Stigmata* 3, ad tubum usque distincta. *Caps.* oblonga, trigona. (*Ker.*)

1. *Radiata.*
2. *Falcata.*
3. *Cinnamomea.*
4. *Angusta.*
5. *Pilosa.*
6. *Virginica.*

See Ker in the *Annals of Botany*, and *Hort. Kew.* vol. i. p. 84. The species 1—5 are given, with the same specific name, by Willdenow, under the genus Ixia.

IV. Sparaxis. *Spatha* 2-valvis, scarioso-membranacea, apice lacera. *Cor.* tubulosa. *Stigmata* 3, recurva. *Caps.* oblongo-globosa. (*Ker.*)

1. *Tricolor.* Cape of Good Hope. *Peren.*
2. *Bicolor.* Cape of Good Hope. *Peren.*
3. *Grandiflora.* Cape of Good Hope. *Peren.*
4. *Bulbifera.* Cape of Good Hope. *Peren.*

See Ker in the *Annals of Botany*, i. p. 225, and *Hort. Kew.* p. 85. The two last species are given with the same specific name by Willdenow, under the genus Ixia; and the second species under Gladiolus.

V. Anomatheca. *Spatha* 2-valvis. *Cor.* hypocrateriformis. *Stigmata* 3, bipartita. *Caps.* papilloso-pruinosa. (*Ker.*)

1. *Juncea.* Cape of Good Hope. *Peren.*

See Ker in the *Annals of Botany*, i. p. 227, and *Hort. Kew.* p. 90. This species is given by Willdenow, with the same specific name, under the genus Gladiolus.

VI. Tritonia. *Spatha* 2-valvis. *Cor.* tubulosa; limbus 6-partitus, subregularis. *Stigmata* 3, patentia. *Sem.* nec alata, nec baccata. (*Ker.*)

1. *Crispa.*
2. *Viridis.*
3. *Rosea.*
4. *Longiflora.*
5. *Lineata.*
6. *Securigera.*
7. *Flava.*
8. *Squalida.*
9. *Fenestrata.*
10. *Crocata.*
11. *Deusta.*
12. *Miniata.*

All perennial, and from the Cape of Good Hope.

See Ker in the *Annals of Botany*, i. p. 227, and *Hort. Kew.* p. 90. The species No. 1, 3, 5, 6, 7, are given by Willdenow with the same specific names, under the genus Gladiolus, and No. 4, 8, 9, and 11, under the genus Ixia.

VII. Watsonia. *Spatha* 2-valvis. *Cor.* tubulosa; limbus, 6-partitus. *Stigmata* 3, filiformia, bipartita: laciniis recurvis. *Caps.* cartilaginea, polysperma. (*Ker.*)

1. *Spicata.*
2. *Plantaginea.*
3. *Punctata.*
4. *Marginata.*
5. *Rosea.*
6. *Brevifolia.*
7. *Iridifolia.*
8. *Meriana.*
9. *Humilis.*
10. *Aletroides.*
11. *Tubulosa.*
12. *Jacquini.*
13. *Fulgens.*
14. *Lucens.*
15. *Præcox.*
16. *Revoluta.*
17. *Laccata.*
18. *Palustris.*
19. *Recurva.*
20. *Hyacinthoides.*
21. *Amœna.*

All perennial, and from the Cape of Good Hope.

See Ker in the *Annals of Botany*, i. p. 229. and *Hort. Kew.* vol. i. p. 93. The species No. 1, 2, are given by Willdenow, with the same specific name, under the genus Ixia, and No. 4, 7, 8, 9, 21, under Gladiolus. Sp. 14, is the *Antholyza Lucida*, and Sp. 18 is the *Ixia Pendula.*

VIII. Melasphærula. *Spatha* 2-valvis. *Cor.* hexapetaloideo-sexpartita: laciniæ cuspidatæ, æquales. *Stigmata* 3, recurva. *Caps.* 3-loba. (*Ker.*)

1. *Graminea.* Cape of Good Hope. *Peren.*

See Ker in the *Annals of Botany*, i. p. 231. This species is given by Willdenow under Gladiolus.

IX. Babiana. *Spatha* 2-valvis: valvula interior bipartita. *Cor.* tubulosa: limbus 6-partitus. *Stigmata* 3, patentia. *Sem.* baccata. (*Ker.*)

1. *Thunbergii.*
2. *Ringens,*
3. *Tubiflora.*
4. *Spathacea.*
5. *Sambucina.*
6. *Sulphurea.*
7. *Plicata.*
8. *Stricta.*
9. *Villosa.*
10. *Rubrocyanea.*

All perennial, and from the Cape of Good Hope.

See Ker in the *Annals of Botany*, i. p. 233, and *Hort. Kew.* vol. i. p. 104. The species No. 1, 2, are given by Willdenow, under Antholyza, No. 3, 4, 7, 8, under Gladiolus, and No. 10, under Ixia, with the same specific names. No. 9 is the Ixia *Punicea* of Willdenow.

X. Lapeyrousia. *Cor.* hypocrateriformis: tubus longior limbo 6-partito. *Stigmata* 3, bipartita. *Caps.* membranacea, polysperma. (*Ker.*)

1. *Corymbosa.* Cape of Good Hope. *Peren.*

See Ker's *Annals of Botany*, i. p. 237. This is the Ixia *Corymbosa* of Willdenow.

XI. Rhynchospora. Squamæ paleaceæ: infimæ vacuæ. *Cor.* 0. *Sem.* 1, coronatum stylo persistente indurato, basi latitudine seminis. (*Vahl.*)

1. *Alba.* Britain. *Peren.*
2. *Fusca.* Wales and Ireland. *Peren.*
3. *Aurea.* New Holland.
4. *Laca.* New Holland.
5. *Longisetis.* New Holland.

See Brown's *Prodromus*, p. 229.

See Vahl's *Enumeratio Plantarum*, ii. p. 238. Species 1, 2, are given by Willdenow under Schœnus.

XII. Salpianthus. *Cal.* tubulosus, limbo campanulato, 4-dentato, inferus persistens. *Cor.* 0. *Stam.* 3, exserta, hypogyna, fundo calycis et ad unum latus ovarii inserta. *Filam.* calyce duplo longiora, filiformia. *Antheræ* globosæ, biloculares erectæ. *Pistillum*, ovarium, superum, latere staminibus opposito, linea rosea, stylo decurrente producta, notatum. *Stylus* unicus, staminum longitudine. *Stigma* acutum. *Semen* ovatum, in fundo calycis persistentis, hinc angulatum, sulco longitudinali exaratum. *Integumentum* unicum cartilagineum, atrum. *Albumen* centrale, corneum. *Embryo* periphericus, annularis, albus. *Cotyledones* orbiculares planiusculæ. *Radicula* infera. (*Humboldt* and *Bonpland.*

1. *Arenarius.* Sandy shores of the Pacific, near Acapulco.

The preceding genus is one of those discovered by Humboldt and Bonpland. We have given the natural character as contained in the *Plantæ Equinoctiales*, p. 155.

XIII. Pardanthus. *Cor.* 6-petaloidea, regularis æqualis. *Caps.* polysperma. *Sem.* receptaculo centrali, libro inserta. (*Ker.*)

1. *Chinensis.* East Indies, China, and Japan. *Peren.*

This is the Moræa *Chinensis* of Willdenow. See Ker, in the *Annals of Botany*, i. p. 246.

XIV. Calymenia. *Cor.* infundibuliformis, plicata. *Nux* 1-sperma, calyce persistenti ampliato membranaceo circumdata. (*Flor. Peruv.*)

1. *Viscosa*, (*Oxybaphus Viscosus* of Willd.)
2. *Ovata.* Peru. *Peren.* (*Flor. Peruv.* i. p. 45.)
3. *Expansa.* Peru. *Peren.* (*Flor. Peruv.* i. p. 45.)
4. *Prostrata.* Hills of Peru. (*Flor. Peruv.* i. p. 45.
5. *Corymbosa.* New Spain. *Peren.* (*Cavanilles.*)
6. *Aggregata.* New Spain, near St Augustine. (*Cavanilles.*)

XV. Phyllactis. *Flor.* involucrati: *Involucrum* 1-phyllum, vaginans. *Cal.* margo minimus. *Cor.* trifida. *Sem.* 1. (Genitalia exserta.) (*Flor. Peruv.*)

1. *Rigida.* Mountains of Tarma. *Peren.* (*Flor. Peruv.*)
2. *Tenuifolia.* Mountains of Tarma. *Peren.* (*Flor. Peruv.*)
3. *Spathulata.* Mountains of Tarma. *Peren.* (*Flor. Peruv.*)

These species resemble plants of the genus Valeriana, but differ from them too much in their habit to be united to that genus.

XVI. Tripterella. *Cal.* 6-fidus, alato-angulosus, supra basin solidam tubulosus. *Cor.* 0. *Stigm.* 3. *Caps.* 3-quetra, 3-locul. polysperma. (*Stam.* inclusa.) (*Michaux.*)

1. *Capitata.* Wet parts of Carolina and Cayenne. (*Michaux.*)

XVII. Outea. *Cal.* 5-dentatus bibracteatus. *Petala* 5: superiore maximo. *Filam.* sterile recondente. *Legumen* pedicellatum. *Stam.* longissima. (*Persoon.*)

1. *Guianensis*, (*Macrolobium pinnatum* of Willdenow.)

XVIII. Tapura. *Cal.* campanulat. 6-partit. basi tribract. *Cor.* 5-pet. bilabiata. *Stigm.* 3, revoluta. (*Persoon.*)

1. *Guianensis.* Woods of Guiana. *Shrub.* (*Rohria Petioliflora* of Willd.)

XIX. Leptanthus, or Heteranthera. *Spatha* 1-flora, hinc dehiscens. *Cor.* tubo longo gracili: limbo sexpartito. *Stam.* laciniis inserta. *Anther.* lineares, aut biformes triangulares. *Caps.* intra spatham, coronata, 3-locularis, polysperma, angulis dehiscens. (*Michaux.*)

1. *Ovalis*, or *Limosus.* Lakes of the Illinois. (*Michaux.*)
2. *Gramineus.* At the river Ohio. (*Michaux.*)
3. *Peruvianus*, or *Reniformis.* At Lima in Peru. *Peren.* (*Flor. Peruv.*)
4. *Virginicus*, or *Acutus.* Virginia. (*Michaux.*)
5. *Pubescens.* Barcelona in South America.
6. *Cordatus.* South America.
7. *Diversifolius.* Guiana. (*Richard.*)

In species 3, 4, the antheræ are of unequal lengths.

XX. Remirea. Spiculæ in capitulum congestæ. *Cal.*

2-valvis. *Cor.* 2-valvis. *Cal.* minor; palea intima. (s. nectar. Schr.) semen non climittente. *Filam.* longissima. (*Persoon.*)

1. *Maritima*, (*Miegia Maritima* of Willd.)
2. *Pedunculata.* New Holland. (Brown's *Prodr.* 236.

XXI. Dichroma. Spica ovata seu capitata involucrata. Squamæ (Paleæ) multis membranaceæ subcongestim imbricatæ. *Styl.* setaceus. *Stigm.* 2. *Sem.* nudum, rugellosum, apice tuberculo lunatim cincto (Fol. floralia seu involucrum basi discolora ut plurimum albicantia.) (*Michaux.*)

1. *Leucocephalum.* Carolina and Georgia. (*Michaux.*)
2. *Ciliatum*, (*Schœnus Stellatus* of Willd.)
3. *Reptans.* Cayenne.

Some of the species of the genus Schoenus, the Scirpus *Radiatus*, and Cyperus *Leucocephalus*, might perhaps be arranged under this genus.

XXII. Hæmodorum. Petala 6, tria interiora supra medium staminifera. *Stigma* obtusum. *Capsula* infera, trilocularis. (*Smith.*)

1. *Coccineum.*
2. *Planifolium.*
3. *Teretifolium.*
4. *Laxum.*
5. *Spicatum.*

All from New Holland. See Brown's *Prodromus*, p. 300.

XXIII. Endiandra. *Flores* hermaphroditi. *Perianthum* 6-fidum, æquale, fauce extra stamina glandulosa. *Stamina* 3! Antheræ biloculares, posticæ. (*R. Brown.*)

1. *Glauca.* New Holland.

The *Laurus Triandra* seems to belong to this genus. See Brown's *Prodromus*, p. 402.

XXIV. Mariscus. *Spicula* 2-3-flora, teretiuscula, squamis 2 (nunc 3) infimis minoribus vacuis, floriferis nervosis. *Setæ* nullæ hypogynæ. *Stylus* filiformis, cum ovario inarticulatus, deciduus. *Stigmata* 3. *Nux* trigona. (*Vahl* and *R. Brown.*)

1. *Lævis.*
2. *Scaber.*
3. *Decompositus.*
4. *Conicus.*

All from New Holland. See Brown's *Prodromus*, p. 218.

XXV. Hypælyptum. *Squamæ* undique imbricatæ, unifloræ. *Perianthium* bivalve, membranaceum. valvulis subæqualibus squamæ oppositis! *Setæ* nullæ hypogynæ. *Stylus* bifidus deciduus. *Nux* perianthio inclusa. (*Vahl* and *R. Brown.*)

1. *Microcephalum.* New Holland. See Brown's *Prodromus*, p. 219.

XXVI. Isolepis. *Squamæ* undique imbricatæ, conformes, omnes floriferæ, paucissimæve exteriorum vacuæ. *Setæ* nullæ hypogynæ. *Stylus* cum ovario inarticulatus, basi simplice, deciduus. (R. Brown, *Prodr.* p. 221.)

1. *Fluitans.* (This species nearly agrees with the *Scirpus Fluitans* of Willd.)
2. *Nodosa*, (*Scirpus Nodosus* of Willd.)
3. *Supina*, (*Scirpus Supinus* of Willd.)
4. *Inundata.* Van Diemen's Island.
5. *Propinqua.* New South Wales.
6. *Setacea*, (*Scirpus Setaceus* of Willd.)
7. *Cartilaginea.* New Holland and Van Diemen's Island.
8. *Cyperoides.* New Holland.
9. *Riparia.* New South Wales.
10. *Lenticularis.* New South Wales.
11. *Barbata*, (*Scirpus Capillaris* of Willdenow.) New Holland.
12. *Prolifer*, (*Scirpus Prolifer* of Rottboel.) New South Wales.

XXVII. Eleocharis. *Squamæ* undique imbricatæ, conformes: vix ullæ steriles. *Setæ* hypogynæ (4–12) denticulatæ raro nullæ. *Stylus* 2-3-fidus, basi dilatata cum ovario articulatæ. *Nux* sæpius lenticularis, basi dilatata indurata styli coronata. (*R. Brown.*)

1. *Sphacelata.*
2. *Compacta.*
3. *Acuta.*
4. *Gracilis.*
5. *Pusilla.*
6. *Capitata* (*Scirpus Capitatus* of Linn.)
7. *Setacea.*
8. *Atricha.*

All from New Holland. Besides these species, the Scirpus *Palustris*, *Geniculatus*, and *Mutatus* of Linn.; *Maculosus* of Vahl; *Tuberculosus* of Michaux; *Ovatus* of Roth; *Plantagineus* of Retz; *Interstinctus* of Vahl; *Spiralis* of Rottboel; *Quadrangulatus* of Michaux; the *Acicularis* of Linnæus; and the Cyperus *Setaceus* of Willd. belong to this genus. See Brown's *Prodromus*, p. 224.

XXVIII. Fimbristylis. *Squamæ* paleaceæ, undique imbricatæ, vix ullæ steriles. *Stylus* compressus, cum ovario articulatus, deciduus: sæpius ciliatus basique bulbosa. *Stigmata* 2 raro 3. *Setæ* nullæ hypogynæ. (*Vahl* and *R. Brown.*)

1. *Pauciflora.*
2. *Androgyna.*
3. *Acicularis.*
4. *Polytrychoides.*
5. *Punctata.*
6. *Pterigosperma.*
7. *Xyrides.*
8. *Nutans.*
9. *Tetragona.*
10. *Spiralis.*
11. *Tristachya.*
12. *Depauperata.*
13. *Denudata.*
14. *Gracilis.*
15. *Rara.*
16. *Parviflora.*
17. *Velata.*
18. *Propinqua.*
19. *Elata.*
20. *Cæspitosa.*
21. *Brevifolia.*
22. *Variabilis.*
23. *Elongata.*
24. *Stricta.*
25. *Cymosa.*
26. *Sericea.*
27. *Ferva.*
28. *Capitata.*
29. *Cyperoides.*

All from New Holland. See Brown's *Prodromus*, p. 225. Species 4 is the *Scirpus Polytrychoides* of Retz. This genus comprehends also the species 48, 51, 52, 68. of the genus Scirpus, p. 99, 100.

XXIX. Abilguardia. *Squamæ* paleaceæ, distiche imbricatæ, omnes pluresve floriferæ. *Setæ* hypogynæ nullæ. *Stylus* 3-fidus, basi pyramidato-bulbosus cum ovario articulatus, deciduus. *Nux* pyriformis, triqueter. (*Vahl* and *R. Brown.*)

1. *Monostachya*, (*Cyperus Monostachyos* of Linn.) New Holland.
2. *Schœnoides.* New Holland.
3. *Vaginata.* New Holland.

This genus has a very great resemblance to the preceding. See Brown's *Prodromus*, p. 229.

XXX. Arthrostylis. *Spicula* uniflora, squamis imbricatis, inferioribus vacuis. *Setæ* nullæ hypogynæ. *Stylus* subulatus, trigonus, cum ovario articulatus, deciduus. *Stigmata* 3. *Nux* trigona. (*R. Brown.*)

1. *Aphylla.* New Holland. Brown's *Prodromus*, p. 229.

XXXI. Carpha. *Spicula* uniflora, squamis subdistichis inferioribus vacuis. *Setæ* hypogynæ 3-6 squamus floriferas æquantes, plumosæ v. capillares. *Stylus* subulatus, cum ovario inarticulatus. *Stigmata* 3. v. 2. *Nux* prismatica, stylo persistenti cuspidata. (*Banks*, *Solander*, and *R. Brown.*)

1. *Alpina.* Van Diemen's Island.
2. *Deusta.* New South Wales.
3. *Avenacea.* New Holland.
4. *Diandra.* New South Wales.
5. *Clandestina.* New Holland.

See Brown's *Prodromus*, p. 230.

XXXII. Schœnus. *Spicula* disticha, 1-3-flora: *Squamis* extimis (3-6) minoribus, congestis vacuis; floriferis dum una pluribus in rachi flexuosa alternis, persistentibus. *Setæ Squamulæve* nullæ hypogynæ. *Stylus* deciduus. (*R. Brown.*)

1. *Imberbis.*
2. *Ericetorum.*
3. *Brevifolius.*
4. *Melanostachys.*
5. *Villosus.*
6. *Acuminatus.*
7. *Sparteus.*
8. *Punctatus.*
9. *Falcatus.*

All from New Holland. See Brown's *Prodromus*, p. 231.

XXXIII. Chætospora. *Spicula* disticha (nunc undique imbricata) pauciflora, *squamis* extimis minoribus, vacuis. *Setæ* hypogynæ, squamis breviores. *Stylus* deciduus. (*R. Brown.*)

1. *Curvifolia.*
2. *Turbinata.*
3. *Brevisetis.*
4. *Lanata.*
5. *Deformis.*
6. *Pedicellata.*
7. *Calostackya.*
8. *Paludosa.*
9. *Imberbis.*
10. *Axillaris.*
11. *Nitens.*
12. *Sphærocephala.*
13. *Anceps.*
14. *Tetragona.*
15. *Stygia.*

All from New Holland. See Brown's *Prodromus*, p. 232. The two last species are doubtful with regard to their genus.

XXXIV. Lepidosperma. *Spiculæ* 1-2-floræ, 1-spermæ: *Squamis* undique imbricatis, plerisque vacuis. *Squamulæ* hypogynæ 6, planæ, crassomembranaceæ, basi connatæ. *Stylus* deciduus. *Nux* ventricosa, calva, obtusa. (*Labillard.* and *R. Brown.*)

1. *Gladiata.*
2. *Concava.*
3. *Elatior.*
4. *Longitudinalis.*
5. *Lateralis.*
6. *Tetragyna.*
7. *Exaltata.*
8. *Viscida.*
9. *Congesta.*
10. *Lævis.*
11. *Squamata.*
12. *Angustata.*
13. *Linearis.*
14. *Globosa.*
15. *Tetragona.*
16. *Aphylla.*
17. *Gracilis.*
18. *Flexuosa.*
19. *Striata.*

All from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 233; and Labillard. *Nov Holland.* i. p. 15.

XXXV. Oreobolus. *Glumæ* duæ, spathaceæ, deciduæ, includentes flosculum unicum squama interiore unica v. nulla. *Perianth.* 6 partitum, artilagineum, post lapsum nucis persistens! *Stylus* 1. deciduus. *Stigmata* 3. *Nux* crustacea. (*R. Brown.*)

1. *Pumilio.* Van Diemen's Island. This plant forms a thick and convex turf on the tops of mountains, from which it receives its generic name. See Brown's *Prodromus*, p. 235.

XXXVI. Cladium. *Spiculæ* undique imbricatæ 1-2-floræ; *squamis* extimis vacuis. *Setæ squamulæve* hypogynæ nullæ. *Stylus* deciduus cum ovario inarticulatus. *Nux* calva. *Nucleus* lævis. (*Patr. Browne*, and *R. Brown.*)

1. *Mariscus.*
2. *Articulatum.*
3. *Teretifolium.*
4. *Glomeratum.*
5. *Junceum.*
6. *Pauciflorum.*
7. *Decompositum.*
8. *Radula.*
9. *Deustum.*
10. *Medium.*
11. *Lanigerum.*
12. *Filum.*
13. *Schœnoides.*

All from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 236. and Labillard. *Nov. Holl.* i. p. 18. Species 1. is the *Schœnus Mariscus* of Linn.

XXXVII. Caustis. *Spiculæ* subunifloræ; squamis fasciculatis, plurimis vacuis. *Setæ squamulæve* hypogynæ nullæ. *Stam.* 3-5. *Stylus* basi dilatata. *Stigmata* 3 4. *Nux* ventricosa basi bulbosa styli coronata. (*R. Brown.*)

1. *Flexuosa.* 2. *Dioica.* 3. *Pentandra.*

All from New Holland. See Brown's *Prodromus*, p. 239.

XXXVIII. Diplarrhena. *Perianthium* petaloideum, 6-partitum, laciniis interioribus minoribus, superiore dissimili fornicata. *Stamina* distincta, duo sub superiore laciniarum interiorum conniventia, tertium castratum. *Stigma* 3-partitum, bilabiatum. *Caps.* oblonga, 3-gona. *Sem.* plano-depressa, simplici serie inserta. (*R. Brown* and *Labillardiere.*)

1. *Moræa.* Van Diemen's Island. (*Moræa diandra* of Vahl.) See Brown's *Prodromus*, p. 304.

XXXIX. Threlkeldia. *Perianth.* urceolatum, intra marginem truncatam squamis 3 membranaceis. *Stam.* 3 hypogyna, squamis opposita. *Utriculus* perianthio drupaceo baccato inclusus. *Semen* ovatum, albuminosum: *Embryone* peripherico, inverso. (*R. Brown.*)

1. *Diffusa.* New Holland. Brown's *Prodromus*, p. 409.

XL. Anisacantha. *Perianth.* 1-phyllum ore 4-fido. *Stam.* 3-4, imo perianthio inserta. *Stylus* 2-partitus. *Utriculus* inclusus perianthio nucamentaceo exsucco, infra apicem 4-spinoso, spinis inæqualibus. *Semen* verticale, albuminosum, integumento simplici; *Embryone* cyclico, *Radicula* supera. (*R. Brown.*)

1. *Divaricata.* New Holland. Brown's *Prodromus* p. 410.

XLI. Iria. *Spica* simplex, squamis subdistiche imbricatis summis congestis, infimis aristatis. *Stam.* 1. *Stigma* 2. *Sem.* muticum. (*Richard.*)

1. *Caribæus.* (*Cyperus monostachyos* of Will.)
2. *Indicus.* East Indies.

Though this genus has only 1 stamen, we have placed it under the present class, on account of its very close affinity with *Cyperus.* Persoon does not separate it from *Cyperus. Synopsis,* p. 65.

XLII. DULICHIUM. *Spicæ* subracemosæ, ex axillis foliorum. *Spiculæ* lineari-lanceolatæ subcompressæ: *Squamæ* subdistichæ amplexanti-appressæ. *Stylus* longissimus, bifidus. *Germ.* setulæ retrorsum asperæ. (*Richard.*)

1. *Spathaceum.* (*Cyperus Spathaceus* of Will.)
2. *Canadense.* Canada.

XLIII. TRICHOPHORUM. *Spiculæ* subovatæ, squamis undique imbricatis. *Sem.* setulæ capilliformes (nec lanam densam referentes) demum longe exsertæ numero definito sex. (*Michaux.*)

1. *Cyperinum.* (*Eriophorum Cyperinum* of Willdenow.)
2. *Lineatum.* Carolina. (*Michaux.*)
3. *Alpinum.* (*Eriophorum Alpinum* of Willdenow. Hudson's Bay.

This is an intermediate genus between SCIRPUS and ERIOPHORUM.

XLIV. HYPOLYTRUM. *Spicula* squamis undique imbricatis. *Sem.* involucellum glumam 3-4-valvem mentiens. *Stam.* 2-3. *Stigm.* 1-2. (*Richard.*)

1. *Latifolium.* India. (*Richard.*)
2. *Senegalense.* Senegal. (*Richard.*)
2. *Gracile.* (*Richard.*)

XLV. DIPLASIA. *Spica* squamis undique imbricatis. Involucellum glumam 4-valvem mentiens. *Stam.* 7. *Stigm.* 2. (*Richard.*)

1. *Karatæfolia.* Guiana. (*Richard.*)

XLVI. LEPIRONIA. *Spicul.* squamis orbiculatis cartilagineis. *Sem.* involucellum 16-paleaceum. *Stam.* 4-6. (*Richard.*)

1. *Mucronata.* Madagascar. (*Richard.*)

See Brown's *Prodromus,* p. 220. under the genus CHONDRACHNE.

XLVII. LIMNETIS. *Spica* lateriflora: flosculis subbifariam imbricatis. *Cal.* 2-valvis: valv. 1. minore. *Cor.* 2-valvis, mutica, compressa, carinata. *Styl.* longus. *Nect.* 0. (Flor. paniculati, stricti.) (*Persoon.*)

1. *Pungens.* *Dactylis Stricta* of Smith.
2. *Juncea.* Dry shores of Carolina and Georgia. (*Michaux.*)
3. *Cynosuroides.* North America.
4. *Polystachia.* Shores of New England. (*Michaux.*) See Persoon's *Synopsis,* p. 72.

XLVIII. ORYZOPSIS. *Cal.* 1-florus, 2-valvis, laxus, obovalis. *Cor.* coriacea, subtereti-ovata, 2-valvis: valv. exteriore apice aristata. *Nect.* 2-paleaceum lineare. (*Richard.*)

1. *Asperifolia.* Mountains from Hudson's Bay to Quebec. (*Michaux.*)

ORDER II. DIGYNIA.

XLIX. SPOROBOLUS. *Gluma* uniflora, bivalvis, mutica, inæqualis, valvula exteriore minore. *Perianthium* bivalve, muticum, acutiusculum, sessile, imberbe, glumâ longius. *Squamulæ* 2 hypogynæ. *Stamina* 2-3. *Stigmata* villosa. *Semen* obovatum, ventricosum, liberum, deciduum. (*R. Brown.*)

1. *Indicus.* New Holland.
2. *Elongatus.* New Holland.
3. *Pulchellus.* New Holland.
4. *Diandrus.*

Species 1. is the *Agrostis Indica* of Linnæus; and *Agrostis Virginica* is also nearly allied to this genus. See Brown's *Prodromus,* p. 169.

L. STREPTACHNE. *Gluma* uniflora, bivalvis, laxa, mutica. *Perianthium* pedicellatum, bivalve; valvula *exterior* cylindraceo-involuta, aristâ terminali simplici inarticulatâ infra tortili: *interior* inclusa, mutica. *Stigmata* plumosa. (*R. Brown.*)

1. *Stipoides.* New Holland.

See Brown's *Prodromus,* p. 174.

LI. AMPHIPOGON. *Gluma* uniflora, bivalvis subæqualis. *Perianth.* bivalve; valvula *exterior* tripida: *interior* bifida: utriusque laciniis aristatis, setaceis, similibus. *Styli* 2, v. basi connati. Flores spicati. (*R. Brown.*)

1. *Laguroides.* New Holland.
2. *Turbinatus.* New Holland.
3. *Strictus.* New South Wales.
4. *Debilis.* New Holland.
5. *Avenaceus.* New Holland.

See Brown's *Prodromus,* p. 175.

LII. DIPLOPOGON. *Gluma* uniflora, bivalvis, laxa, membranacea, aristata. *Perianth.* bivalve; valvula *exterior,* apice triaristata, arista intermedia dissimili tortili: interior biaristata. *Spica* capituliformis. (*R. Brown.*)

1. *Setaceus.* New Holland.

See Brown's *Prodromus,* p. 176.

LIII. ANISOPOGON. *Gluma* uniflora, bivalvis, æqualis, membranacea, laxa, nervosa. *Perianth.* pedicellatum, bivalve; valvula *exterior* cylindraceo-involuta, apice triaristata, arista intermedia dissimili tortili, lateralibus setaceis; *interior* longior, mutica. (*R. Brown.*)

1. *Avenaceus.* New South Wales.

See Brown's *Prodromus,* p. 176.

LIV. DANTHONIA. *Gluma* bi-multiflora, bivalvis, membranacea, laxa, perianthio longior. *Perianth.* bivalve; valvula *exterior* infra definite barbata, supra imberbis, apice triaristata, arista intermedia dissimili tortili quandoque abbreviata: *interior* mutica. (*Decandolle.*)

1. *Longifolia.* New South Wales.
2. *Pallida.* New South Wales.
3. *Semiannularis.* New South Wales and Van Diemen's Island.
4. *Pilosa.* New South Wales.
5. *Racemosa.* New South Wales and Van Diemen's Island.
6. *Setacea.* New Holland and Van Diemen's Island.
7. *Pauciflora.* Van Diemen's Island.
8. *Paradoxa.* New South Wales.

Sp. 3. and 5. are the ARUNDO *Semiannularis* and *Penicillata* of Labillardiere. See Decandolle *Flore Françoise,* iii. p. 32. and Brown's *Prodromus,* p. 177.

LV. GLYCERIA. *Gluma* multiflora, bivalvis. *Spicula* teres, mutica. *Perianthium* imberbe, valvulis longitudine æqualibus. *Squama* hypogyna, unica carnosa semiscutellata! *Stigmata* decomposita! *Semen* liberum, oblongum, hinc sulcatum. *Flores* subpaniculati. (*R. Brown.*)

1. *Fluitans.* New South Wales.

This species is the FESTUCA *Fluitans* of Willdedenow. See Brown's *Prodromus*, p. 179.

LVI. TRIODIA. *Gluma* multiflora, bivalvis, subæqualis. *Perianthii* valvula *exterior* tridentata, dentibus subæqualibus, intermedio stricto. *Squamulæ* 2-hypogynæ. *Flores* paniculati. (*R. Brown.*)

1. *Pungens.*
2. *Procera.*
3. *Parviflora.*
4. *Microstachya.*
5. *Irritans.*
6. *Ambigua.*

All from New Holland.

The *Festuca decumbens* of Linnæus, which is the *Danthonia decumbens* of Decandolle, belongs to this genus. See Brown's *Prodromus*, p. 182.

LVII. ARUNDO. *Gluma* multiflora, bivalvis. *Spiculæ* distichæ, floribus lanâ longâ persistenti cinctis. *Perianth.* bivalve, membranaceum, valvulâ exteriore subulatâ. (*R. Brown.*)

1. *Phragmites.* New Holland and Van Diemen's Island.

This species is the *Arundo phragmites* of Linnæus, but the genus is reformed by Mr Brown. See *Prodromus*, 183.

LVIII. ERIACHNE. *Gluma* biflora, bivalvis, æqualis. *Perianth.* utrumque sessile, hermaphroditum, bivalve, valvulis ambabus barbatis, exteriore arista terminali simplici, v. mutica. *Squamulæ* 2-hypogynæ. *Stigmata* plumosa. (*R. Brown.*)

1. *Rara.*
2. *Squarrosa.*
3. *Glauca.*
4. *Avenacea.*
5. *Ciliata.*
6. *Pallescens.*
7. *Mucronata.*
8. *Brevifolia.*
9. *Obtusa.*
10. *Capillaris.*

All from New Holland.

See Brown's *Prodromus*, p. 183.

LIX. TRIRAPHIS. *Gluma* multiflora, bivalvis, æqualis, mutica. *Spicula* disticha, floribus 2 v. pluribus inferioribus hermaphroditis, reliquis masculis et neutris. *Perianthii* valvula *exterior* apice triaristata, aristis rectis: *interior* mutica. *Squamulæ* 2 hypogynæ. *Stigmata* villosa. *Flores* paniculati. (*R. Brown.*)

1. *Pungens.*
2. *Mollis.*

} Both from New Holland.

See Brown's *Prodromus*, p. 185.

LX. ECTROSIA. *Gluma* multiflora, bivalvis, subæqualis, mutica. *Spicula* disticha, flosculo infimo hermaphrodito, reliquis masculis v. neutris. (*R. Brown.*)

1. *Leporina.* New Holland.
2. *Spadicea.* New Holland.

See Brown's *Prodromus*, p. 185.

LXI. ELEUSINE. Spicæ digitatæ. Flor. secundi, mutici. *Cal.* multiflorus. *Cor.* 2-valvis mutica. (Flor. omnes hermaphroditi.) (*Gærtner.*)

1. *Corocana.*
2. *Egyptia.*

} Under CYNOSURUS in Willd. with the same spec. names.

3. *Indica.* India, from North America.
4. *Mucronata.* Country of the Illinois. (*Mich.*)
5. *Domingensis.* Jamaica. St Domingo.
6. *Virgata.* (Under CYNOSURUS Willd.)
7. *Filiformis.* South America.
8. *Radulans.* New Holland. (*Brown*, 186.)

LXII. CYNODON. *Cal.* 2-valvis, patens, lanceolatus. *Cor.* major, 2-valvis: valv. exteriore maxima ovoidea. *Nect.* truncatum. Spica digitata, florib. *unica* serie imbricatis, solitariis. (*Richard.*)

1. *Dactylon.* *Panicum dactylon* of Willd.
2. *Tenellum.* New Holland.
2. *Polystachyon.* New Holland.

} Brown's *Prodromus*, 187.

LXIII. CŒLACHNE. *Gluma* biflora, bivalvis, valvulis subæqualibus, obtusissimis, ventricosis. *Flosculi* mutici, bivalves; *inferior* hermaphroditus, valvulâ *exteriore* ventricosâ: superior pedicellatus minor, femineus! *Squamulæ* hypogynæ. *Stigmata* plumosa. *Semen* liberum, teres, utrinque acutum. (*R. Brown.*)

1. *Pulchella.* New Holland.

This genus resembles the species *Nana* of the genus BRIZA. See Brown's *Prodromus*, p. 187.

LXIV. MATRELLA. *Cal.* 0. *Cor.* cartilaginea seu indurata, compressa, mutica, 2-valvis: valv. demum connatæ? (*Persoon.*)

1. *Juncea.* *Agrostis matrella* of Willdenow.

LXV. TRICHODIUM. *Cal.* 2-valvis; valvul. subæqualibus acutis: carina spinulosa. *Cor.* brevior, 1-valvis mutica. *Stigm.* subsessilia hispidula. (Flor. paniculati.) (*Richard.*)

1. *Laxiflorum.* Near Hudson's Bay. (*Mich.*)
2. *Decumbens.* *Agrostis anomala* of Willd.

LXVI. ZOYSIA. ZOYDIA, (*Persoon.*) *Cal.* 1-valvis, carinatus. *Cor.* 1-valvis, membranacea. (*Willdenow.*)

1. *Pungens.* Coasts of Malabar and New Holland. (Willd. *Nov. Act. Berol.* 3.) See Brown's *Prodromus*, p. 208.

LXVII. STURMIA. *Cal.* 2-valvis: valv. æqualibus truncatis. *Cor.* minor, 2-valvis ovata, lanuginosa, mutica. (Spica filiformis, flor. alternis sessilibus.) (*Persoon.*)

1. *Verna.* *Agrostis minima* of Willdenow.

LXVIII. POLYPOGON. *Cal.* 2-valvis, aristatus, uniflorus. *Cor.* 2-valvis: valvula exteriore aristata. (*Desfont.*)

1. *Monspeliense.* Coast of France and England. (Willd. *N. A. Berol.*)
2. *Maritimum.* Coast of France near Rochelle. (Willd. *N. A. Berol.*)
3. *Vaginatum.* Tauria. (Pallas *N. A. Petrop.* x. p. 304.)
4. *Fasciculatum.* Estremadura. (Willd. *N. A. Berol.*)
5. *Tenellus.* New Holland. (*Brown*, p. 171.)

LXIX. TRACHYS. Spic. digitata: flosc. in rachi membranacea 1-laterales; pedicellis pinnatis. Bract. seu involucrum ovatum cartilagineum. *Cal.* 1-florus, 2-valvis. *Cor.* 2-valvis. (*Persoon.*)

1. *Mucronata.* *Panicum squarrosum* of Willd.

LXX. CERESIA. Flosc. laterales bifarii sub rachi lata membranacea cymbiformi. *Cal.* 2-valvis, 1-florus, lanatus. (*Persoon.*)

1. *Elegans.* Peru. *Paspalum membranaceum* of Lamarck.

LXXI. KOELERIA. *Cal.* multiflorus, 2-valvis compresso-carinatus. *Cor.* 2-valvis, brevi aristata: glumis nervosis. (Spica composita ex spiculis compressis, sæpius pubescentibus subsessilibus. (*Persoon.*)

1. *Gracilis.* Perhaps the *Aira subspicata* of Linn.
2. *Cristata.* *Poa cristata* of different authors.
3. *Tuberosa.* *Aira cristata* of Smith.
4. *Phleoides.* *Poa cristata* of Linnæus.
5. *Villosa.* Europe and Barbary. (*Desfont.*)

LXXII. Trisetum. *Cal.* 2-3-florus, accuminatus, carinatus. *Cor.* aristis 2 terminalibus subdentiformibus (glum. apice setoso-bifidis), 1 dorsali recta nec contorta, flosc. ut plurimum glabris. (*Spiculæ* compressæ, pallescentes. (*Persoon.*)

1. *Striatum.* *Avena tenuis* of Willd.
2. *Villosum.* *Avena triseta* of Willd.
3. *Nudum.* *Avena pallida* of Willd.
4. *Nitidum.* Near Moscow. *Desfont.*
5. *Luteum.* Martinique.
6. *Parviflorum.* Crops on Mt. Atlas. (*Desfont.*)
7. *Pratense.* *Avena flavescens* of Linn.
8. *Paniceum.* Portugal. (*Link* in Schrader's *Journ.*)
9. *Hispanicum.* *Avena Loefflingiana* of Linn.
10. *Ovatum.* Hills of Spain. (*Cavanilles.*)
11. *Aristidioides.* Cape of Good Hope.

Several species of the genus Avena, for example, *Pennsylvanica*, *Lupulina*, and *Purpurea*, seem to belong to this genus. See Persoon's *Synopsis*, p. 98.

LXIII. Trichoon. *Cal.* 2-valvis, 1-florus. *Cor.* 2-valvis, cal. duplo major: uterque nudus. *Germen* lana cinctum. (*Persoon.*)

1. *Karka.* *Arundo Karka* of Willd.

The calyx in *Saccharum*, the corolla in *Arundo*, and the germen in *Trichoon*, is surrounded with wool. Persoon's *Synopsis*, p. 102.

LXXIV. Imperata. *Flor.* omnes hermaph., geminati altero pedicellato. *Gluma* bivalvis, biflora, æqualis, mutica, lana cincta. *Perianth.* inclusa, hyalina, mutica; *exterius* univalve, neutrum; *interius* bivalve, hermaphroditum, valvula interiore latiore. Squamulæ nullæ hypogynæ. Stam. 2. *Stigmata* plumosa. *Cyrill.*

1. *Cylindricum.* Spain, Barbary, and New Holland. *Peren.*
2. *Koenigii.* India.
3. *Arundinacea.* The *Lagurus Cylindricus* of Linn.

Though this genus has only 2 stamina, it is placed here on account of its great affinity to *Saccharum*, from which it differs in the want of the *Squamulæ hypogynæ*. See Brown's *Prodromus*, p. 203. Persoon seems rather disposed to rank this genus under *Saccharum*. *Synopsis*, p. 103.

LXXV. Erianthus. *Cal.* gluma bivalvis, mutica, valvis lineari-oblongis canaliculatis, basi villis densis involucrata. *Cor.* bivalvis: valva interiore longe aristata. 1-andra. (*Michaux.*)

1. *Giganteum.* (*Anthoxanthum Giganteum.*)
2. *Brevibarbe.* Hills of Tenassee and Carolina.

Though this genus has only 1 stamen, it is placed here on account of its great affinity to *Saccharum*, from which Persoon has not yet ventured to separate it.

LXXVI. Colladea. *Flor.* spicati, rachis flexuosa. *Cal.* 2-4-partitus: laciniis subovatis basi sinu (denteque) distinctis, 2-florus. *Cor.* 2-valvis, cal. brevior, mutica aut aristata. (*Persoon.*)

1. *Distachya.* Island of Mindanao. (*Cavanilles.*)
2. *Monostachya.* (*Tripsacum hermaphroditum* of Linn.) See Persoon's *Synopsis*, p. 107.

LXXVII. Orthopogon. *Gluma* biflora, bivalvis, subæqualis, valvula *exteriore* aristata, vix minore; *interiore* brevius aristata v. mutica, aristis edentulis! *Flosculi* dissimiles, sessiles, *exterior* masculus v. neuter, valvula exteriore textura glumæ: *interior* hermaphroditus, chartaceus. *Squamulæ* 2 hypogynæ. *Stigmata* plumosa. *Semen* perianthio cartilagineo inclusum. (*R. Brown.*)

1. *Compositus.*
2. *Æmulus.*
3. *Flaccidus.*
4. *Imbecillis.*

All from New Holland. See Brown's *Prodromus*, p. 194.

LXXVIII. Neurachne. *Gluma* biflora, bivalvis, valvulis nervosis, acutis, hispidis, coriaceis, subæqualibus, exteriore parum minore, fructiferis induratis. *Flores* dissimiles; *exterior* neuter, bivalvis, valvula exteriore glumæ subsimili; *interior* hermaphroditus, hyalino-membranaceus, bivalvis. *Squamulæ* 2 hypogynæ. *Stigmata* plumosa. *Semen* liberum, e perianthio membranaceo decedens. (*R. Brown.*)

1. *Alopecuroidea.* New Holland.

See Brown's *Prodromus*, p. 196.

LXXIX. Isachne. *Gluma* biflora, bivalvis, æqualis, membranacea, obtusa. *Flosculi* æquales, bivalves, chartacei; *exterior* masculus; *interior* femineus. *Squam.* 2 hypog. *Stigmata* plumosa. *Semen* perianthio indurato inclusum. (*R. Brown.*)

1. *Australis.* New Holland.

See Brown's *Prodromus*, p. 196.

LXXX. Xerochloa. *Gluma* biflora, bivalvis, inæqualis, excavationi racheos parallela, semi-immersa; valvula exteriore minore. *Perianthium* utrumque exsertum, bivalve, muticum, membranaceum, subulatum; *exterius* masculum, triandrum: *interius* femineum, stylis 2, basi connatis. *Squamulæ* nullæ hypogynæ. *Semen* valvula interiore! chartacea perianthii inclusum. (*R. Brown.*)

1. *Imberbis.*
2. *Barbata.*

Both from New Holland. See Brown's *Prodromus*, p. 196.

LXXXI. Dimeria. *Flores* omnes hermaph., sessiles, spicati, rachi inarticulata persistenti. *Gluma*, biflora, bivalvis, coriacea, basi barbata, valvula utraque naviculari, interiore angustiore. *Flosculi* inclusi, hyalini; *exterior* univalvis, neuter; *interior* hermaphroditus, bivalvis, valvula exteriore aristata, interiore minutissima. *Squam.* 2 hypogynæ. *Stigmata* plumosa. *Semen.* cylindraceum, valvula exteriore glumæ inclusum. (*R. Brown.*)

1. *Acinaciformis.* N. Holland.
2. *Indica.* East Indies.

Brown's *Prod.* p. 204.

LXXXII. Ophiurus. *Spica* teres, articulis unifloris, floribus excavationibus, racheos immersis. *Gluma* biflora, bivalvis, valvula *exteriore* cartilaginea; *interiore* concava, membranacea. *Perianthium* utrumque inclusum, membranaceum, muticum: *exterius* masculum vel neutrum: *interius* hermaphroditum. (*R. Brown.*)

1. *Corymbosa.* (*Rottboellia corymbosus.*)

See Brown's *Prodromus*, p. 206.

LXXXIII. Lepturus. *Spica* teres, articulis unifloris, floribus excavationibus racheos immersis.

Gluma univalvis, cartilaginea, 1-2-flora, rudimento pedicellato flosculi secundi exterioris, vel tertii intermedii. *Perianthia* inclusa, membranacea, mutica, bivalvia; dum bina utrumque hermaphroditum, exterius pedicellatum. *Squam.* hypogynæ 2. *Stigmata* plumosa. (*R. Brown.*)

1. *Repens.* (*Rottboellia repens* of Willd.) New Holland.

Rottboellia incurvata and *filiformis* perhaps belong to this genus. See Brown's *Prod.* p. 207.

LXXXIV. Hemarthria. *Spica* compressa, semiarticulata, articulis bifloris. *Gluma* biflora, bivalvis, valvula interiori *inferioris* rachi agglutinata, *superioris* soluta. *Perianthia* inclusa, hyalina, mutica: *exterius* univalve, neutrum: *interius* hermaphroditum, bivalve. *Squam.* 2 hypogynæ. *Stigmata* Plumosa. (*R. Brown.*)

1. *Compressa* (*Rottboellia Compressa.*)
2. *Uncinata.* Van Diemen's Island.

See Brown's *Prodromus*, p. 207.

LXXXV. Microchloa *Spica* unilateralis, inarticulata. *Gluma* uniflora, bivalvis, subæqualis, acuta, membranacea. *Perianthium* inclusum, muticum, villosum, bivalve, inversum. *Stam.* 2-3. *Stigmata* plumosa. (*R. Brown.*)

1. *Setacea* (*Rottboellia setacea* of Roxburgh.)

See Brown's *Prodromus*, p. 208.

LXXXVI. Pentapogon. *Gluma* uniflora, bivalvis, æqualis, mutica. *Perianthium* pedicellatum, bivalve; valvula *exterior* apice 5-aristata, arista intermedia dissimili tortili: *interior* mutica. *Stigmata* 2, sessilia, villosa. *Flores* paniculati. (*R. Brown.*)

Class III. Triandria.

1. *Billardieri.* Van Diemen's Island.

This plant is the *Agrostis quadrifida* of Labillardiere, *Nov. Holl.* i. p. 20. See Brown's *Prodromus*, p. 173.

‡ LXXXVII. Sesleria. *Cal.* bivalvis, subtriflorus, aristatus. *Cor.* bivalvis: valvula exteriore tridentata; interiore bidentata. (*Jussieu.*)

1. *Cærulea.* Britain. *Peren.*
2. *Sphærocephala.* Carinthia and Tyrol.
3. *Microcephala.* Carinthia and Tyrol.
4. *Disticha.* Carinthia and the Pyrenees.

See Jussieu, *Genera Plantarum. Par.* 1789. Species 1, 3, are given by Willdenow, under Cynosurus.

Order III. Trigynia.

LXXXVIII. Chameraphys. *Gluma* biflora, bivalvis, valvula exteriore minima. *Flosculi* bivalves; *exterior* masculus, valvula exteriore textura interioris glumæ; *interior* minor, chartaceus, femineus. *Squam.* 2 hypogynæ. *Stigmata* plumosa. *Semen* perianthio cartilagineo inclusum. *R. Brown.*

1. *Hordeacea.* New Holland.

This genus has a very great affinity to *Panicum*, particularly to Species 133, 134, 135. from which it scarcely differs but in the number of styles. See Brown's *Prodr.* p. 19.

REMARKS ON THE CLASS TRIANDRIA.

Under the class Triandria, Persoon has ranked the genera Sysirinchium, Galaxia, and Ferraria; which, after Willdenow, we have given under the class Monadelphia. The new genus Tigridia, which he has also placed in this class, will be found under Monadelphia.

The following plants being triandrous, might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Boerhaavia *excelsa, repanda, chærophylloides, plumbaginea.* Galium *trifidum.* Pontederia *limosa.* Narcissus *triandrus.* Laurus *triandra.* Hirtella *triandra.* Tradescantia *multiflora.* Fagara *spinosa, acuminata.* Some species of *Amaranthus.* Juncus *conglomeratus, effusus.* Rivina *Brasiliensis.*

Digynia.

Tripsacum *hermaphroditum.* Chenopodium *triandrum.* Some species of Ehrharta, &c.

Trigynia.

Ixia *gladiata* (Linn.) Elatine *triandra.* Some species of Zanthoxylyum. Tillæa *muscosa.* Alsine *media*, &c.

CLASS IV. TETRANDRIA.

Order I. Monogynia.

Sect. I. *Flowers Monopetalous, with one Seed, and Inferior.*

169. Globularia. *Cal.* communis imbricatus; proprius tubulatus, inferus. *Corollulæ* labio superiore 2-partito: inferiore tripartito. *Receptac.* paleaceum.

Class IV. Tetrandria.

1. *Longifolia.* Madeira. *Shrub.*
2. *Alypum.* Montpellier, and the woods and rocks of Valentia and Italy. *Shrub.*
3. *Bisnagarica.* Woods of Bisnagur. *Peren.*
4. *Vulgaris.* Hard parts of Europe. *Peren.*
5. *Spinosa.* Mountains of Granada. *Peren.*
6. *Cardifolia.* Hungary, Austria, Switzerland, and the Pyrenees. *Peren.*
7. *Nana.* South of France and the Pyrenees. *Shrub.*

8. *Nudicaulis.* Pyrenees, Austria, and the mountains of Switzerland. *Peren.*
9. *Orientalis.* Natolia. *Peren.*
* 10. *Linifolia.* Spain. *Peren.* (*Lamarck.*)

SECT. II. *Flowers Monopetalous, with one Seed, and Incorporated.*

‡ 171. DIPSACUS. *Cal.* communis polyphyllus: proprius superus. *Recept.* paleaceum.
1. *Fullonum.* South of Europe. *Bien.*
2. *Sylvestris.* France, England, Italy, and Germany. *Bien.*
3. *Laciniatus.* Alsace, Germany, and Carniola. *Bien.*
4. *Pilosus.* England, France, Germany, &c. *Bien.*

‡ 172. SCABIOSA. *Cal.* communis polyphyllus: proprius duplex superus. *Recept.* paleaceum seu nudum.
1. *Alpina.* Mountains of Switzerland and Italy. *Peren.*
2. *Ustulata.* Cape of Good Hope. *Peren.*
3. *Rigida.* Ethiopia. *Shrub.*
4. *Attenuata.* Cape of Good Hope. *Shrub.*
5. *Scabra.* Cape of Good Hope. *Shrub.*
6. *Transylvanica.* Transylvania. *Ann.*
7. *Syriaca.* Syria. *Ann.*
8. *Leucantha.* Hills of Narbonne, and in Carniola. *Peren.*
9. *Succisa.* Wet pastures of Europe. *Peren.*
10. *Integrifolia.* Montpellier and Switzerland. *Ann.*
11. *Amplexicaulis.* *Ann.*
12. *Humilis.* Cape of Good Hope.
13. *Decurrens.* Cape of Good Hope.
14. *Tatarica.* Tartary. *Bien.*
15. *Arvensis.* Meadows of Europe. *Peren.*
16. *Uralensis.* Siberia. *Ann.*
17. *Sylvatica.* Woods of Austria, Switzerland, Germany, and Montpellier. *Peren.*
18. *Gramuntia.* Montpellier.
19. *Columbaria.* Dry and mountainous parts of Europe. *Peren.*
20. *Pyrenaica.* Pyrenees, Switzerland, and Savoy. *Bien.*
21. *Sicula.* Sicily. *Ann.*
22. *Rutæfolia.* Tunis, about Cape Zebibo, and coasts of Sicily. *Peren.*
23. *Maritima.* Sicily and Montpellier. *Ann.*
24. *Stellata.* Spain. *Ann.*
25. *Prolifera.* Egypt. *Ann.*
26. *Atropurpurea.* India? *Ann.*
27. *Argentea.* In the East. *Peren.*
28. *Indurata.* Africa. *Shrub.*
29. *Africana.* Africa and the East. *Shrub.*
30. *Monspeliensis.* Montpellier. *Bien.*
31. *Pumila.* Cape of Good Hope. *Peren.*
32. *Cretica.* Candia. *Shrub.*
33. *Limonifolia.* Sicily. *Shrub.*
34. *Graminifolia.* Mountains of Switzerland and the hills of Barbary. *Peren.*
35. *Lyrata.* Dardanelles.
36. *Palæstina.* Palestine. *Peren.*
37. *Isetensis.* Rocky parts about Isetensis in Siberia.
38. *Ucranica.* Ukraine.
39. *Ochroleuca.* Dry meadows of Germany. *Bien.*
40. *Papposa.* Candia. *Ann.*
41. *Pterocephala.* Greece? *Shrub.*
* 42. *Lucida.* Azores Isles. *Peren.* (*Hort. Kew.*)
* 43. *Caucasea.* Mount Caucasus. *Peren.* (Sim, *Bot. Mag.* 886.)
* 44. *Corniculata.* In the Bannat and Transylvania.
* 45. *Longifolia.* Hills of Marmora.
* 46. *Canescens.* Hungary, Bohemia, and Germany.
* 47. *Banatica.* In the Bannat at Ciklova.
} See Waldst. and Kitaib. *Plant. Rar. Hung.*
* 48. *Parviflora.* Algiers.
* 49. *Daucoides.* Hills of Algiers.
* 50. *Grandiflora.* Fields of Barbary.
* 51. *Urceolata.* Shores of Barbary.
} See Desfontaines, *Flor. Atlant.*
* 52. *Tomentosa.* Mountains of Valentia. *Peren.*
* 53. *Saxatilis.* Fissures of rocks in Valentia. *Ann.*
} Cavanilles *Icones*, &c.
* 54. *Lucida.* Woods of Dauphiny. (*Villars.*)

173. KNAUTIA. *Cal.* communis oblongus simplex, quinqueflorus; proprius simplex, superus. *Corollulæ* irregulares. *Recept.* nudum.
1. *Orientalis.* In the East. *Ann.*
2. *Propontica.* In the East. *Bien.*
3. *Palestina.* Palestine. *Ann.*
4. *Plumosa.* East. *Ann.*

174. ALLIONIA. *Cal.* communis oblongus, simplex triflorus; proprius obsoletus, superus. *Corollulæ* irregulares. *Receptaculum* nudum.
1. *Violacea.* Cumana in South America.
2. *Incarnata.* Rocks and sandy places in Cumana and Peru. *Ann.*

SECT. III. *Flowers Monopetalous, with four Seeds.*

188. MATTUSCHKEA. *Cal.* 4-partit. *Cor.* infundibulif. 4-fid. *Sem.* 4, nuda.
1. *Hirsuta.* Sandy and wet parts of Guiana. *Ann.*

SECT. IV. *Flowers Monopetalous, with one Fruit Vessel, and Inferior.*

203. PYROSTRIA. *Cal.* minimus sub 4-dentatus. *Cor.* campanulat. 5-fida, fauce tomentosa. *Drupa* pyriformis infera, 8-striata. *Nuces* 8, monospermæ.
1. *Salicifolia.* Island of Mauritius. *Shrub.*

202. MYONIMA. *Cal.* minimus subinteger. *Cor.* 4-partita tubo brevi. *Drupa* nuce 4-locul. 4-sperma.
1. *Obovata.* Island of Bourbon. *Shrub.*
2. *Lanceolata.* Island of Bourbon. *Shrub.*

201. PETITIA. *Cal.* 4-dentatus inferus. *Cor.* 4-partita. *Drupa* nuce 2-loculari.

1. *Domingensis.* Woody parts of St Domingo. *Shrub.*

210. AQUARTIA. *Cal.* campanulatus. *Cor.* rotata: laciniis linearibus. *Bacca* polysperma.

1. *Aculeata.* South America. *Shrub.*
2. *Microphylla.* St Domingo. *Shrub.*

190. RAUSSEA. *Cal.* 4-phyllus. *Cor.* campanulata 4-fida infera. *Bacca* 4-angularis polysperma.

1. *Simplex.* Island of Mauritius. *Shrub.*

209. CALLICARPA. *Cal.* 4-fidus. *Cor.* 4-fida. *Bacca* 4-sperma.

1. *Americana.* Carolina and Virginia. *Shrub.*
2. *Cana.* Malabar and Cochinchina. *Shrub.*
3. *Lanata.* India. *Shrub.*
4. *Macrophylla.* India. *Shrub.*
5. *Ferruginea.* Jamaica. *Shrub.*
6. *Reticulata.* Jamaica. *Shrub.*
7. *Longifolia.* Malacca. *Shrub.*
8. *Integrifolia.* Woody parts of Carthagena. *Shrub.*
9. *Villosa.* East Indies? *Shrub.*
10. *Japonica.* Japan. *Shrub.*
* 11. *Globiflora.* Groves of Chinchao. *Shrub.*
* 12. *Cordifolia.* Groves of Munna. *Shrub.* See *Flor. Peruv.* i. p. 49.
* 13. *Pedunculata.* New Holland. } Brown's *Pro-*
* 14. *Adenanthera.* New Holland. } *drom.* p. 512.

208. WALLENIA. *Cal.* 4-fidus inferus. *Cor.* tubulosa 4-fida. *Bacca.* 1-sperma.

1. *Laurifolia.* Jamaica and Hispaniola. *Shrub.*

211. WITHERINGIA. *Cor.* subcampanulata: tubo quadrigibbo. *Cal.* minimus, obsolete 4-dentatus. *Pericarp.* 2-loculare.

1. *Solanacea.* South America. *Peren.*

205. ÆGIPHILA. *Cal.* 4-dentatus. *Cor.* 4-fida. *Styl.* semibifidus. *Bacca* 2-locul. loculis, 2-spermis.

1. *Martinicensis.* Borders of woods in the Island of Martinique. *Shrub.*
2. *Elata.* West Indies. *Shrub.*
3. *Nuxia.* Island of Bourbon. *Shrub.*
4. *Villosa.* Dry fields of Cayenne. *Shrub.*
5. *Arborescens.* Woods of Cayenne and Guiana. *Shrub.*
6. *Lævis.* Woods of Guiana. *Shrub.*
7. *Fœtida.* Jamaica. *Shrub.*
8. *Trifida.* Jamaica. *Shrub.*
* 9. *Multiflora.* Banks of rivers in Peru. (*Flor. Peruv.*)

170. CEPHALANTHUS. *Cal.* communis 0; proprius superus, infundibuliformis. *Recept.* globosum, pilosum. *Caps.* 4-locul. non dehiscens. *Sem.* solitaria.

1. *Occidentalis.* North America. *Shrub.*

215. LASIOSTOMA. *Cal.* 5-fid. *Cor.* infundibulif. fauce villosa. *Capsula.* 1-locul. disperma.

1. *Cirrhosa.* Banks of rivers in Guiana. *Shrub.*

223. SCOPARIA. *Cal.* 4-partitus. *Cor.* 4-partita rotata. *Caps.* 2-locularis, 2-valvis, polysperma.

1. *Dulcis.* Jamaica. Curaçoa. *Ann.*
2. *Procumbens.* Warmer parts of America. *Ann.*
3. *Arborea.* Cape of Good Hope. *Shrub.*
* 4. *Dulcis.* New Holland. (Brown's *Prodr.* p. 443.)

Species 3. probably belongs to another genus.

‡ 224. CENTUNCULUS. *Cal.* 4-fidus. *Cor.* 4-fida, patens. *Stamina* brevia. *Caps.* 1-locularis, circumscissa.

1. *Minimus.* Moist heaths of England, Italy, Germany, and Sweden. *Ann.*
* 2. *Lanceolatus.* Wet parts of Carolina. *Ann.* (*Michaux.*)
* 3. *Pentandrus,* the *Anagallis pumila* of Swartz. New Holland. (*Brown,* p. 427.)

‡ 222. PLANTAGO. *Cal.* 4-fidus. *Cor.* 4-fida: limbo reflexo. *Stamina* longissima. *Caps.* 2-locularis, circumscissa.

1. *Major.* Europe and Japan on the road sides. *Peren.*
2. *Crassa,* or *Crispa.* South of Europe? *Peren.*
3. *Asiatica.* China and Siberia. *Peren.*
4. *Maxima,* or *Cucullata* of Persoon. Siberia. *Peren.*
5. *Media.* Barren pastures of Europe. *Peren.*
6. *Virginica.* Virginia. *Ann.*
7. *Altissima.* Italy. *Peren.*
8. *Lanceolata.* Barren fields of Europe and North America. *Peren.*
9. *Capensis.* Cape of Good Hope.
10. *Lagopus.* South of France, Spain, Portugal. *Peren.*
11. *Lusitanica.* Spain. *Peren.*
12. *Patagonica.* Banks of the Champion River in Patagonia. *Ann.*
13. *Albicans.* Dry parts of Spain and Narbonne. *Peren.*
14. *Hirsuta.* Cape of Good Hope.
15. *Alpina.* Mountains of Switzerland and Austria. *Peren.*
16. *Bellardi.* Spain, Italy, and the dry parts near Tunis. *Ann.*
17. *Cretica.* Candia. *Ann.*
18. *Barbata.* Terra del Fuego. *Peren.*
19. *Maritima.* Sea shores of Europe and North America. *Peren.*
20. *Subulata,* or *Triquetra.* Sandy shores of the Mediterranean. *Peren.*
21. *Recurvata.* South of Europe, and the East. *Ann.*
22. *Macrorhiza.* Road sides near Tunis. *Peren.*
23. *Serraria.* Italy and Morocco. *Peren.*
24. *Coronopus.* Europe. *Ann.*
25. *Loeflingii.* Hills of Spain. *Ann.*
26. *Cornuti.* *Peren.*
27. *Amplexicaulis.* Spain. *Ann.*
28. *Psyllium.* South of Europe. *Ann.*
29. *Squarrosa,* or *Ægyptiaca.* Egypt. *Ann.*
30. *Indica.* Egypt, and about Astracan. *Ann.*
31. *Pumila.* South of Europe. *Ann.*
32. *Cynops.* Provence, Italy, and Siberia. *Shr.*
33. *Afra.* Sicily and Barbary. *Shrub.*
* 34. *Cordata.* Kentucky. (*Michaux.*)
* 35. *Sinuata.* Mauritius. (Lamarck, *Illust.*)
* 36. *Vaginata.* Morocco. (Vent. *Jard. de Cels.*)
* 37. *Australis.* Buenos Ayres. } Lamarck, *Illust.*
* 38. *Tomentosa.* Monte Video. } p. 339, 340.
* 39. *Villosa.* (Roth. *Cat.* ii. p. 11.)
* 40. *Pilosa.* Spain? (Roth. *Cat.* ii. p. 11.)
* 41. *Nutans.* In Malaga, Spain. (Poir. *Encyc.* p. 381.)

*42. *Argentea.* Barbary, and South of France. (*Desfont.*)
*43. *Victorialis.* Mount Victoire near Aix.
*44. *Gracilis.* Hills of Barbary.
*45. *Interrupta.* North America.
See Poir. *Encyc.* p. 377.
*46. *Ciliata.* Barbary. (*Desfont.*)
*47. *Remota.* Cape of Good Hope. (*Lamarck.*)
*48. *Myosuros.* Monte Video. (*Lamarck.*)
*49. *Limensis.* Hills of Lima. (*Fl. Peruv.*)
*50. *Microcephala.* India.
*51. *Velutina.* Italy, Calabria.
*52. *Glomerata.* Teneriffe.
See Poir. *Encyc.*
*53. *Pygmæa.* (*Lamarck.*)
*54. *Scorzoneræfolia.* In the East. (*Lamarck.*)
*55. *Scirpoides.* Spain? (Poir. *Encyc.*)
*56. *Hispidula.* Sandy parts of Chili. (*Fl. Peruv.*)
*57. *Graminea.* South of France. (*Lamarck.*)
*58. *Alopecuroides.* Barbary. (*Lamarck.*)
*59. *Sericea.* Hills of Tarma.
*60. *Congesta.* Hills of Tarma.
Flor. Peruv.
*61. *Aristata.* Meadows of the Illinois. (*Mich.*)
*62. *Philippica.* St Cruz, the Philippine Isles. *Ann.* (*Cavanilles.*)
*63. *Stricta.* About Mogadore.
*64. *Parviflora.* Barbary. (*Desfont.*)
*65. *Arborescens.* Canary Isles. (Poir. *Encyc.*)
*66. *Genevensis.* Mountains near Geneva. (Poir. *Encyc.*)
*67. *Varia.*
*68. *Debilis.*
*69. *Hispida.*
*70. *Carnosa.*

Sp. 67—70. from New Holland. See Brown's *Prodromus*, p. 424.

213. Polypremum. *Cal.* 4-phyllus. *Cor.* 4-fida, rotata: lobis obcordatis. *Caps.* compressa, emarginata, bilocularis.
1. *Procumbens.* Carolina, Virginia. *Ann.*

220. Buddleia. *Cal.* 4-fidus. *Cor.* 4-fida. *Stamina* ex incisuris. *Caps.* 2-sulca, 2-locularis, polysperma.
1. *Americana.* Banks of rivers and torrents in the Caribbees. *Shrub.*
2. *Occidentalis.* America. *Shrub.*
3. *Globosa.* Wet parts of Chili. *Shrub.*
4. *Salvifolia.* Cape of Good Hope. *Shrub.*
5. *Madagascariensis.* Madagascar. *Shrub.*
6. *Salicifolia.* Bonaria? *Shrub.*
7. *Diversifolia.* Java. *Shrub.*
8. *Virgata.* Cape of Good Hope. *Shrub.*
9. *Incompta.* Cape of Good Hope. *Shrub.*
*10. *Incana.* Banks of Peru.
*11. *Connata.* Growing corns in Chancay.
*12. *Diffusa.* Sides of fields in Peru.
*13. *Picata.* Dry parts of Munna.
See *Flor. Peruv.* 1. p. 52.

‡ 221. Exacum. *Cal.* 4-phyllus. *Cor.* 4-fida: tubo globoso. *Caps.* 2-sulca, 2-locularis, polysperma, apice dehiscens.
1. *Viscosum.* Canary Islands. *Peren.*
2. *Pedunculatum.* East Indies. *Ann.*
3. *Albens.* Cape of Good Hope. *Ann.*
4. *Aureum.* Cape of Good Hope. *Ann.*
5. *Sessile.* Ceylon. *Ann.*
6. *Cordatum.* Cape of Good Hope. *Ann.*
7. *Punctatum.* India.
8. *Quadrangulare.* Dry parts of Lima.
9. *Guianense.* Cayenne. *Ann.*
10. *Diffusum.* East Indies. *Ann.*
11. *Tenuifolium.* Wet meadows of Cayenne and Guiana. *Ann.*
12 *Filiforme.* Wet meadows of Germany, Denmark, England, and France. *Ann.*
13. *Aphyllum.* Woods and damp meadows of Martinique. *Ann.*
14. *Heteroclitum.* Fields of Malabar. *Ann.*
15. *Spicatum.* Banks of rivers of Cayenne and Guiana. *Ann.*
16. *Ramosum.* Banks of rivers and woods of Cayenne and Guiana. *Ann.*
17. *Verticillatum.* Warm parts of America.
18. *Hyssopifolium.* East Indies.

There are also several unpublished species of Exacum from the East Indies. See the new genus Sebæa.

212. Myrmecia. *Cal.* companulatus 5-dentatus. *Cor.* tubulosa: fauce inflata. *Glandul.* 5, germinis basin cingentes. *Caps.* 2-locul. 2-valv. polysperma.
1. *Scandens.* Woods and banks of rivers in Guiana. *Shrub.*

214. Labatra. *Cal.* 4-phyllus inferus. *Cor.* subcampanulata, 4-fida: Laciniæ 2, minutiæ in divisuris corollæ. *Caps.* 4-locul. *Sem.* solitaria.
1. *Sssiliflora.* Fertile mountains of Hispaniola. *Shrub.*
2. *Pedunculata.* Woods of Guiana.

218. Penæa. *Cal.* 2-phyllus. *Cor.* campanulata, *Stylus* 4-angularis. *Caps.* tetragona, 4-locularis, 8-sperma.
1. *Sarcocolla.* Ethiopia. *Shrub.*
2. *Mucronata.* Ethiopia. *Shrub.*
3. *Marginata.* Rivers near the Cape of Good Hope. *Shrub.*
4. *Lateriflora.* Cape of Good Hope. *Shrub.*
5. *Tomentosa.* Cape of Good Hope. *Shrub.*
6. *Fucata.* Mountains at the Cape of Good Hope. *Shrub.*
7. *Squamosa.* Æthiopia. *Shrub.*
8. *Fruticulosa.* Cape of Good Hope. *Shrub.*
9. *Myrtoides.* Cape of Good Hope. *Shrub.*

219. Blæria. *Cal.* 4-partitus. *Cor.* 4-fida. *Stam.* receptaculo inserta. *Caps.* 4-locularis, polysperma.
1. *Ericoides.*
2. *Scabra.*
3. *Fasciculata.*
4. *Articulata.*
5. *Purpurea.*
6. *Muscosa.*
7. *Pusilla.*
8. *Glabella.*
9. *Ciliaris.*

All shrubs, and from the Cape of Good Hope.

SECT. V. *Flowers Monopetalous, with one Seed Vessel, and Superior.*

200. Chomelia. *Cal.* 4-partitus. *Cor.* hypocrateriformis, 4-partita. *Drupa* infera nuce 2-loculari. *Stigmata* 2, crassiuscula.
1. *Spinósa.* Carthagena, at the foot of the mountains of La Popa.

204. Cunninghamia. The Melanea of Persoon. *Cal.* 4-dentatus. *Cor.* infundibulif. 4-fid. *Drupa*, infera nuce 2-locul. stylus 2-fid.

ass IV.
randria.

1. *Sarmentosa.* Guiana. *Shrub.*
2. *Verticillata.* Isles of France and Bourbon. *Shrub.*

192. Scolosanthus. *Cal.* 4-fidus. *Cor.* tubulosa, limbo revoluto. *Drupa* monosperma.
1. *Versicolor.* Island of Santa Cruz. *Shrub.*

195. Pavetta. *Cor.* 1-petala, infundibuliformis, supera. *Stigma* curvum. *Bacca* 2-sperma.
1. *Indica.* India. *Shrub.*
2. *Villosa.* Arabia Felix, *Shrub.*
3. *Longiflora.* Arabia Felix. *Shrub.*
4. *Caffra.* Cape of Good Hope. *Shrub.*
5. *Pentandra.* West Indies. *Shrub.*
*6. *Amplexicaulis.* East Indies. (*Persoon*, p. 131.)

194. Ixora. *Cor.* 1-petala, infundibulif. longa supera. *Stamina* supra faucem. *Bacca* 4-sperma.
1. *Coccinea.* India. *Shrub.*
2. *Parviflora.* East Indies. *Shrub.*
3. *Alba.* India. *Shrub.*
4. *Americana.* Jamaica. *Shrub.*
5. *Fasciculata.* Jamaica. *Shrub.*
6. *Multiflora.* Jamaica. *Shrub.*
*7. *Pavetta.* India. (*Andrews*, t. 78.)
*8. *Ternifolia.* New Spain. (*Cavanilles.*)

The *Lonicera Corymbosa* of Linn. is perhaps of this genus. The limits between this genus and the preceding one, Pavetta, are not sufficiently distinct. They are united by Lamarck, *Illust. Gen.* p. 285. See Persoon's *Synopsis*, i. p. 131.

198. Petesia. *Cor.* 1-petala infundibuliformis. *Stigma* bifidum. *Bacca* polysperma.
1. *Stipularis.* Jamaica. *Shrub.*
2. *Carnea.* Island of Namoka. *Shrub.*
3. *Tomentosa.* Woody parts of Carthagena.

193. Catesbea. *Cor.* 1-petala, infundibulif. longissima, supera. *Stamina* intra faucem. *Bacca* polysperma, bilocularis.
1. *Spinosa.* Island of New Providence, and the other Bahama Islands. *Shrub.*
2. *Parviflora.* Jamaica. *Shrub.*

191. Frœlichia. *Cal.* superus, 4-dentatus. *Cor.* tubulosa. *Bacca* 1-sperma exsucca. *Semen* arillatum.
1. *Paniculata.* Island of Trinidad. *Shrub.*

199. Hoffmannia. *Cal.* 4-dentatus. *Cor.* hypocraterif. 4-partita. *Filam.* 0. *Bacca* bilocularis polysperma infera.
1. *Pedunculata.* Jamaica. *Peren.*

196. Ernodia. *Cor.* 1-petala hypocrateriformis. *Cal.* 4-partitus. *Bacca* 2-locularis. *Sem.* solitaria.
1. *Littoralis.* Jamaica. *Shrub.*
*2. *Pungens.* South America. (*Lamarck.*)

The species of this and the following genus may perhaps be included in the genus Ixora or Pavetta. See Persoon's *Synopsis*, p. 131.

197. Siderodendrum. *Cor.* 1-petala, hypocrateriformis. *Cal.* 4 dentatus. *Bacca* dicocca, 2-locul. *Sem.* solitaria.
1. *Triflorum.* Mountains of Martinique and Montserrat. *Shrub.*

207. Coccocypsilum. *Cal.* 4-partitus superus. *Cor.* infundibuliformis. *Bacca* inflata 2-locularis polysperma. *Stylus* semibifidus.

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Tetrandria.

1. *Repens.* Mountains of Jamaica. *Peren.*
2. *Uniflorum.* Island of Mauritius. *Shrub.*
3. *Biflorum.* Island of Bourbon. *Shrub.*
*4. *Condalia.* Groves of Peru.
*5. *Lanceolatum.* Groves of Peru.
*6. *Sessile.*
*7. *Obovatum.* Groves of the Andes at the mountain Chinchas.

Sp. 4—7. see *Flor. Peruv.* i. p. 54.

206. Mitchella. *Cor.* 1-petalæ, superæ, binæ eidem germini. *Stigma* 4. *Bacca* bifida, 4-sperma.
1. *Repens.* Carolina, Maryland, Virginia. *Shrub.*

176. Hedyotis. *Cor.* 1-petala infundibuliformis. *Caps.* 2-locularis, polysperma, infera.
1. *Fruticosa.* Ceylon. *Shrub.*
2. *Racemosa.* East Indies.
3. *Auricularia.* Ceylon. *Peren.*
4. *Hispida.* China.
5. *Maritima.* East Indies.
6. *Pumila.* Tranquebar. *Ann.*
7. *Diffusa.* East Indies.
8. *Herbacea.* Ceylon.
9. *Graminifolia.* East Indies. *Peren.*
10. *Virgata.* Guinea. *Peren.*
11. *Rupestris.* Rocky parts of the sea shores in the West Indies. *Shrub.*
*12. *Setosa.* In the Andes at Tarma. *Shrub.*
*13. *Juniperifolia.* Tarma and Canta. *Shrub.*
*14. *Thymifolia.* Tarma and Canta. *Shrub.*
*15. *Filiformis.* In the Andes.
*16. *Conferta.* Mts. of Canta and Tarma. *Shrub.*

Species 12—16, see *Flor. Peruv.* i. p. 56.

240. Oldenlandia. *Cor.* tetrapetala. *Cal.* 4-partitus, superus. *Caps.* 2-locularis, infera, polysperma.
1. *Verticillata.* Amboyna, Jamaica.
2. *Digyna.* Tranquebar, in the fields in the rainy season. *Ann.*
3. *Trinervia.* India.
4. *Depressa.* East Indies.
5. *Capensis.* Cape of Good Hope.
6. *Uniflora.* Virginia and Jamaica, in watery parts.
7. *Biflora.* India. *Ann.*
8. *Pentandra.* Tranquebar. *Ann.*
9. *Umbellata.* India. *Peren.*
10. *Corymbosa.* South America. *Ann.*
11. *Hirsuta.* Java.
12. *Debilis.* Isl. of Tongataboo, Pacific Ocean.
13. *Fœtida.* Island of Tongataboo.
*14. *Glomerata.* Wet parts of Lower Carolina. (*Michaux.*)

Cavanilles, in his *Icones*, &c. vol. vi., has described, under the genus Heydyotis, several new species of this genus, as he is of opinion, along with Lamarck and Schreber, that there is little or no difference between the two genera. See Persoon's *Synopsis*, v. i. p. 146.

181. Hydrophylax. *Cor.* 1-petala, infundibuliformis. *Cal.* quadripartitus. *Caps.* angulata, 2-locul. dissepimento transverso. *Semina* solitaria.
1. *Maritima.* Sands of India. *Peren.*

216. Manettia. *Cal.* 8-phyllus superus. *Cor.* 4-fida. *Caps.* infera 2-valvis unilocularis. *Sem.* imbricata orbiculata, seminulo centrali. (*Stam.*

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4, 5. Plantæ volubiles aut scandentes. *Persoon.*)

1. *Reclinata.* Mexico. *Ann.*

2. *Lygistum.* Jamaica. *Shrub.*

3. *Coccinea.* Guiana. *Shrub.*

4. *Picta.* Guiana. *Shrub.*

5. *Lanceolata.* High mts. of Hadie. *Shrub.*

*6. *Umbellata.* Groves of Munna. } See *Flor.*

*7. *Mutabilis.* } *Peruv.* i. p.

*8. *Acutiflora.* Groves of Peru. } 58.

183. CARPHALEA. *Cor.* 1-petala infundibuliform. intus hirta. *Cal.* 4-fidus: laciniis spathulatis scariosis. *Caps.* 2-locularis 2-valvis polysperma.

1. *Corymbosa.* Madagascar. *Shrub.*

217. BELLARDIA, or TONTANEA of Persoon. *Cal.* 4-fid. super. *Cor.* 4-fida. *Nect.* margo 4-lob. stylum cingens. *Caps.* 4-locul. 2-partibilis polysperma.

1. *Repens.* Woods of Cayenne and Guiana. *Per.*

‡ 225. SANGUISORBA. *Cal.* 2-phyllus inferus. *Cor.* supera. *Germen* inter calycem corollamque.

1. *Officinalis.* Dry meadows of Europe. *Peren.*

2. *Media.* Canada. *Peren.*

3. *Canadensis.* Canada and Siberia. *Peren.*

*4. *Mauritanica.* In the hedges of Algiers. (*Desfont.*)

SECT. VI. *Flowers Monopetalous, Inferior, two Capsules united each with one Cell.*

184. HOUSTONIA. *Cor.* 1-petala, infundibulif. *Caps.* 2-locularis 2-sperma, supera.

1. *Cærulea.* Virginia. *Peren.*

2. *Longifolia.* North America. *Peren.*

3. *Purpurea.* Virginia.

*4. *Serpyllifolia.* At the rivulets in the mountains of Carolina. *Peren.*

*5. *Rotundifolia.* Florida.

*6. *Angustifolia.* Florida.

*7. *Coccinea.* Mexico. (Andrew's *Rep.*)

See Michaux, *Flor. Bor. Amer.* i. p. 85.

SECT. VII. *Flowers Monopetalous, Superior, two Capsules united, each with one Cell. Stellated.*

‡ 187. RUBIA. *Cor.* 1-petala, campanulata. *Baccæ* 2, monospermæ.

1. *Tinctorum.* Montpellier and the meadows of Italy, Switzerland, and the Danube. *Peren.*

2. *Chilensis.* Chili. *Peren.*

3. *Peregrina.* S. of England, Russia, and Mountains of France. *Peren.*

4. *Lucida.* France and Majorca. *Shrub.*

5. *Fruticosa.* Teneriffe. *Shrub.*

6. *Angustifolia.* Minorca.

7. *Cordifolia.* Majorca, Cape of Good Hope, Siberia, China, Japan. *Peren.*

*8. *Acaliculata.* Madras. *Peren.* (Stam. 5.) (*Cavanilles.*)

*9. *Brownei.* Carolina (the *Valantia Hypocarpia* of Linn.)

‡ 185. GALIUM. *Cor.* 1-petala, plana. *Sem.* 2-subrotunda.

1. *Rubioides.* South of Europe, Siberia. *Peren.*

2. *Palustre.* Muddy rivulets of Europe. *Peren.*

3. *Trifidum.* Denmark and Canada.

4. *Fruticosum.* Candia. *Shrub.*

5. *Montantum.* Germ. France, and Eng. *Peren.*

6. *Tinctorium.* North America. *Peren.*

7. *Capense.* Cape of Good Hope.

8. *Mucronatum.* Cape of Good Hope.

9. *Expansum.* Cape of Good Hope.

10. *Asperum.* Cape of Good Hope.

11. *Glabrum.* Cape of Good Hope.

12. *Austriacum.* Rocks of Saxony, Austria, France, and Candia. *Peren.*

13. *Bocconi* or *Scabrum* of Persoon. Germany, Switzerland, France, Italy.

14. *Viscosum.* Mountains near Tunis. *Ann.*

15. *Saxatile.* Spain, Italy, and mountains of Switzerland. *Peren.*

16. *Tenue.* Mountains of Dauphiny. *Peren.*

17. *Jussiei.* Mts. of Dauphiny and Savoy. *Per.*

18. *Pyrenaicum.* In the Pyrenees. *Peren.*

19. *Minutum.* Russia. *Peren.*

20. *Pusillum.* Engl. and mts. in Provence. *Per.*

21. *Scabrum.* Austria. *Peren.*

22. *Verum.* Europe. *Peren.*

23. *Mollugo.* Middle regions of Europe. *Peren.*

24. *Sylvaticum.* Germany and the south of Europe. *Peren.*

25. *Linifolium.* South of Europe. *Peren.*

26. *Rigidum.* *Peren.*

27. *Aristatum.* Baldo. *Peren.*

28. *Hierosolymitanum.* Palestine.

29. *Paschale.* About Constantinople.

30. *Glaucum.* Tartary, Switzerland, Austria, France, Germany, and Siberia. *Peren.*

31. *Purpureum.* France, Italy, and Switzerland.

32. *Rubrum.* France, Italy, and the Palatinate.

33. *Megalospermum.* Mont Cenis.

34. *Spurium.* *Tricorne* of Smith. Europe. *Ann.*

35. *Harcynicum.* Woody mountains of Germany, Silesia, Saxony, and Alsace. *Peren.*

36. *Uliginosum.* Barren watery parts of Europe. *Peren.*

37. *Boreale.* Meadows of Europe. *Peren.*

38. *Rotundifolium.* Woody mountains of Germany, Switzerland, France, and Japan. *Peren.*

39. *Bermudianum.* Virginea.

40. *Ericoides.* Monte Video.

41. *Hirtum.* Monte Video.

42. *Ruthenicum.* Lower Wolga. *Peren.*

43. *Aparine.* Europe. *Ann.*

44. *Aparinoides.* Shady places of Arabia.

45. *Album.* Smyrna.

46. *Microcarpum.* Dry mountains about Tunis, rarely met with in Spain.

47. *Parisienne.* *Anglicum* of Smith. England and France. *Ann.*

48. *Pilosum.* North America. *Peren.*

49. *Maritimum.* In the East, Montpellier and the Pyrenees.

50. *Græcum.* Rocky parts in Candia. *Shrub.*

*51. *Erectum.* *G. Provinciale* of Lamarck. Britain, France, Germany. *Peren.*

*52. *Cruciatum.* France and Britain. *Peren.*

*53. *Articulatum.* In the East.

*54. *Pumilum.* France and Italy. (*Fl. Franc.*)

Class IV. Tetrandria.

1. *Japonica.* Japan. *Shrub.*

233. MONETIA. *Cal.* 4-fidus. *Cor.* 4-petala. *Bacca* 2-locul. loculis 1-spermis.
   1. *Barlerioides.* India and Cape of Good Hope. *Shrub.*
   2. *Diacantha.* India. *Shrub.*

230. SAMARA. *Cal.* 4-partitus. *Cor.* 4-petala. *Stamina* basi-petali immersa. *Stigma* infundibuliforme. *Drupa* 1-sperma.
   1. *Læta.* East Indies. *Shrub.*
   2. *Coriacea.* Jamaica. *Shrub.*
   3. *Pentandra.* Cape of Good Hope. *Shrub.*
   4. *Floribunda.* In Cayenne and Guiana. *Shrub.*

232. HARTOGIA. *Petala* 4 patentia. *Cal.* 5-fidus *Drupa* ovata. *Nuce* 2-sperma.
   1. *Capensis.* Woods at the Cape of Good Hope. *Shrub.*

This might perhaps be considered a species of *Myginda.*

247. CURTISIA. *Cal.* 4-part. *Petala* 4. *Drupa* supera subrotunda succulenta: *Nuce* 4-5-locul.
   1. *Faginea.* Cape of Good Hope. *Shrub.*

231. FAGARA. *Cal.* 4-fidus. *Cor.*-4-petala. *Caps.* 2-valvis, monosperma.
   1. *Triphylla.* Philippine islands. *Shrub.*
   2. *Evodia.* Friendly Islands and New Hebrides. *Shrub.*
   3. *Pterota.* Jamaica. *Shrub.*
   4. *Piperita.* Japan. *Shrub.*
   5. *Tragodes.* America. *Shrub.*
   6. *Zanthoxyloides.* Senegal and Guinea. *Shrub.*
   7. *Horrida.* Japan. *Shrub.*
   8. *Capensis.* Cape of Good Hope. *Shrub.*
   9. *Armata.* Cape of Good Hope. *Shrub.*
   10. *Avicennæ.* China. *Shrub.*
   11. *Octandria.* Curaçao. *Shrub.*
   12. *Elaphrium.* Carthagena. *Shrub.*

Species 11 and 12 belong, perhaps, to a distinct genus. See Persoon's *Synopsis*, p. 144, 145.

237. OTHERA. *Petala* 4-lanceolata. *Calyx* 4-partitus. *Stigma* sessile. *Capsula.*
   1. *Japonica.* Japan. See ORIXA. *Shrub.*

238. ORIXA. *Petala* 4-lanceolata. *Calyx* 4-partitus. *Stigma* capitatum. *Capsula?*
   1. *Japonica.* Japan. *Shrub.*

Lamarck and Persoon place this plant under the genus OTHERA, though the latter thinks, that it, and the OTHERA *japonica*, may belong to other genera.

241. AMMANNIA. *Cor.* 4-petala, *calyci* inserta, vel nulla. *Cal.* 1-phyllus, plicatus, 8-dentatus, inferus. *Caps.* 4-locularis.
   1. *Latifolia.* Wet parts of the Caribbee islands. *Ann.*
   2. *Ramosior.* Virginia. *Ann.*
   3. *Debilis.* East Indies. *Ann.*
   4. *Sanguinolenta.* Ditches and watery places in Jamaica and Hispaniola.
   5. *Octandra*, or *Coccinea* of Persoon. E. Indies.
   6. *Baccifera*, or *Indica* of Lamarck. China and Italy. *Ann.*
   7. *Pinnatifida.* Java.

   *8. *Humilis.* Marshes of N. Carolina. (*Mich.*)
   *9. *Verticillata.* Italy. (*Lamarck.*)
   *10. *Senegalensis.* Senegal. (*Lamarck.*)

SECT. X. *Flowers with Four Petals, Superior.*

Class
Tetran

243. TRAPA. *Cor.* 4-petala. *Cal.* 4-partitus. *Nux* spinis 4-oppositis cincta, quæ calycis folia fuere.
   1. *Natans.* South of Europe, and stagnant places of Asia. *Ann.*
   2. *Bicornis.* China.

226. CISSUS. *Bacca* 1-sperma, cincta calyce, *Corolla*que quadripartita.
   1. *Vitiginea.* India. *Shrub.*
   2. *Capensis.* Cape of Good Hope.
   3. *Repanda.* East Indies. *Shrub.*
   4. *Latifolia.* Woods of the East Indies and Madagascar. *Shrub.*
   5. *Cordifolia.* America. *Peren.*
   6. *Rotundifolia.* Woods in Arabia Felix.
   7. *Sicyoides.* Jamaica. *Peren.*
   8. *Quadrangularis.* Arabia and India. *Peren.*
   9. *Acida.* Warm parts of America. *Shrub.*
   10. *Cirrhosa.* Cape of Good Hope.
   11. *Trifoliata*, or *Alata* of Persoon. Jamaica. *Peren.*
   12. *Microcarpa.* West Indies. *Shrub.*
   13. *Crenata.* East Indies. *Shrub.*
   14. *Carnosa.* East Indies.
   15. *Obovata.* Santa Cruz.
   16. *Japonica.* Japan. *Peren.*
   17. *Pentaphylla.* Japan. *Peren.*
   18. *Pedata.* East Indies. *Shrub.*

   *19. *Antartica.* New S. Wales. *Shrub.* (*Ventenat.*)
   *20. *Quinata.* Cape of Good Hope. *Shrub.* (*Hort. Kew.*)
   *21. *Compressicaulis.* Chancay in Peru. (*Flor. Peruv.*)
   *22. *Ampelopsis.* North America, and at the banks of the Savannah. (*Michaux.*)
   *23. *Tomentosa.* Isle of Bourbon. (*Lamarck.*)
   *24. *Angulata.* East Indies. } See Lamarck, *Ill.*
   *25. *Cinerea.* East Indies. } 332, 380.
   *26. *Hederacea*, *Hedera Quinquefolia* of Linn. (*Michaux.*)
   *27. *Striata.* Peru. }
   *28. *Granulata.* Peru. } See *Flor. Peruv.* i. p. 64. t. 100, 101.
   *29. *Obliqua.* Tarma. }
   *30. *Mappia.* Isle of France. } Lamarck, *Ill.*
   *31. *Orientalis.* In the East. } p. 332, &c.
   *32. *Stans.* Carolina and Virginia. The *Vitis Arborea* of Linn.

On account of the species 22, 26, and 30, having five stamina, Michaux makes them constitute a distinct genus, which he calls AMPELOPSIS. Persoon, however, gives these species under CISSUS, with the following generic character: *Cal.* 4-dentatus inferus. *Pet.* 4, libera reflexo-patula decidua.

229. GLOSSOMA. *Cal.* 4-dentatus. *Cor.* 4-petala. *Anth.* membrana cohærentes. *Stigma* 4-fidum. *Drupa* nuce sulcata 1-sperma.
   1. *Arborescens.* Woods of Guiana. *Shrub.*

‡ 228. CORNUS. *Involucrum* 4-phyllum sæpius. *Petala* supera 4. *Drupa* nuce 2-loculari.
   1. *Suecica.* Europe, north of Asia, Kamtschatka, Scotland and England.
   2. *Canadensis.* Canada, Labrador, &c. *Peren.*
   3. *Florida.* Woods of Virginia. *Shrub.*

4. *Mascula.* In the hedges of Europe. *Shrub.*
5. *Japonica.* Japan. *Shrub.*
6. *Sanguinea.* Britain and other parts of Europe; Asia, and North America *Shrub.*
7. *Alba.* Siberia and Canada. *Shrub.*
8. *Sericea.* South Carolina and Pennsylvania. *Shrub.*
9. *Circinata.* Pennsylvania. *Shrub.*
10. *Stricta.* North America.
11. *Paniculata.* North America. *Shrub.*
12. *Alternifolia.* North America. *Shrub.*
*13. *Stolonifera.* Canada and New England. *Shrub.*
*14. *Fastigiata.* Virginia and Carolina.
} Michaux, *Flor. Amer.*

239. LUDWIGIA. *Cor.* 4-petala. *Cal.* 4-partitus superus. *Caps.* 4-gona, 4-locularis, infera, polysperma.

1. *Alternifolia.* Virginia. *Ann.*
2. *Hirsuta.* South Carolina.
3. *Jussiæoides.* Mauritius, India, and Carolina. *Shrub.*
4. *Oppositifolia.* India. *Shrub.*
5. *Erigata.* India. *Ann.*
*6. *Nitida.* Wet parts of Lower Carolina.
*7. *Pedunculata.* Wet parts of Lower Carolina.
*8. *Angustifolia.* Beside ditches in Carolina.
*9. *Virgata.* Dry woods of Lower Carolina.
*10. *Capitata.* Sunny and wet parts of Carolina.
*11. *Macrocarpa.* Meadows of Virginia.
*12. *Microcarpa.* Wet grounds of Virginia.
*13. *Mollis.* Marshes of Lower Carolina.

Species 6—13, see Michaux. *Flor. Amer.* 87, &c.

251. SANTALUM. *Cor.* 4-petala: petalis calyci innatis præter *glandulas* 4. *Cal.* 4-dentatus. *Bacca* infera, monosperma.

1. *Album.* India. *Shrub.*
*2. *Myrtifolium.*
*3. *Ovatum.*
*4. *Venosum.*
*5. *Oblongatum.*
*6. *Lanceolatum.*
*7. *Obtusifolium.*

Species 3—7 are shrubby, and from New Holland. See Brown's *Prodromus*, p. 355. "Quam maxime affine Fusano," says Mr Brown, "a quo differt solummodo perianthio minus profunde diviso, glandulisque distinctis staminibus alternantibus."

SECT. XI. *Flowers Incomplete, Inferior.*

252. STRUTHIOLA. *Cor.* 0. *Cal.* tubulosus: ore glandulis 8. *Bacca* exsucca, 1-sperma.

1. *Virgata.*
2. *Nana.*
3. *Juniperina.*
4. *Erecta.*
5. *Ovata.*
*6. *Imbricata.*
*7. *Tomentosa.*
*8. *Pubescens.*
*9. *Angustifolia.* (*Lamarck.*)

All shrubby, and from the Cape of Good Hope.

Sp. 6, 7, see Andrew's *Repository*, 113, 334. Sp. 8, see *Bot. Mag.* 1212.

175. OPERCULARIA. *Cal.* communis, campanulatus 3 seu 6-florus, 6 seu 9-dentatus; proprius 0. *Corollulæ* 4 seu 5-fidæ equales. *Semina* solitaria receptaculo immersa.

1. *Umbellata.* New Holland. *Shrub.*
2. *Aspera.* New South Wales. *Shrub.*
3. *Diphylla.* New Zealand.

See CRYPTOSPERMUM.

165. PROTEA. *Cor.* 4-fida s. 4-petala. *Antheræ* liniares insertæ petalis infra apicem. *Cal.* proprius 0. Nux 1-sperma supera.

1. *Decumbens.*
2. *Florida.*
3. *Cyanoides.*
4. *Patula.*
5. *Pulchella.*
6. *Sphærocephala.*
7. *Serraria.*
8. *Triternata.*
9. *Glomerata.*
10. *Phylicoides.*
11. *Lagopus.*
12. *Spicata.*
13. *Sceptrum.*
14. *Crinita.*
15. *Conocarpa.*
16. *Elliptica.*
17. *Hypophylla.*
18. *Cucullata.*
19. *Tomentosa.*
20. *Heterophylla.*
21. *Pinifolia.*
22. *Racemosa.*
23. *Incurva.*
24. *Caudata.*
25. *Bractsata.*
26. *Comosa.*
27. *Purpurea.*
28. *Prolifera.*
29. *Corymbosa.*
30. *Nana*, or *Rosacea*, (a distinct species in Persoon.)
31. *Lanata.*
32. *Torta.*
33. *Alba.*
34. *Aulacea.*
35. *Umbellata.*
36. *Linearis.*
37. *Cinerea.*
38. *Scolymus.*
39. *Abyssinica.*
40. *Mellifera.*
41. *Repens.*
42. *Plumosa.*
43. *Obliqua.*
44. *Parviflora.*
45. *Pallens.*
46. *Conifera.*
47. *Levisanus.*
48. *Strobilina.*
49. *Imbricata.*
50. *Sericea.*
51. *Saligna.*
52. *Argentea.*
53. *Acaulis.*
54. *Myrtifolia.*
55. *Grandiflora.*
56. *Glabra.*
57. *Speciosa.*
58. *Totta.* (Perhaps *Venosa* of Lamarck.)
59. *Hirta.*
60. *Pubera.*
61. *Divaricata.*
62. *Spathulata.* (Perhaps *Concava* of Lamarck.)
63. *Cynaroides.*
64. *Cordata.*
*65. *Tridactylides.*

All shrubby, and all from the Cape of Good Hope, except Sp. 5. and 65. from New Holland, and Sp. 39. from Abyssinia.

See the New Genera at the end of this Class, under which several of the preceding species are arranged.

167. RUPALA. *Cal.* 0. Petala 4 basi cohærentia. *Stamina* medio petalorum inserta. *Pericarp.* 1-locul. monospermum.

1. *Montana.* Island of Cayenne. *Shrub.*
2. *Sessilifolia.* Cayenne. *Shrub.*

Persoon thinks that this may be ranked as a species of *Embothrium*, from the similarity of the flowers.

166. BANKSIA. *Recept. comm.* elongatum squamosum. *Cor.* 4-petala. *Stamina* limbo inserta. Caps. 2-valv. 2-sperma, interjecto seminibus dissepimento mobili. *Sem.* alata.

1. *Serrata.*
2. *Grandis.*
3. *Integrifolia.*
4. *Pyriformis.*
5. *Dentata.*
6. *Spinulosa.*
7. *Ericæfolia.*
8. *Gibbosa.*

All shrubby, and from New Holland.

See the New Genera, No. XVII. at the end of this Class.

Class IV. Tetrandria.

168. Embothrium. *Cal.* 0. *Cor.* tetrapetala. *Stamina* limbo petallorum inserta. *Folliculus* polyspermus. *Sem.* alata.
1. *Speciocissimum.* New Holland. *Shrub.*
2. *Coccineum.* Straits of Magellan and in Terra del Fuego. *Shrub.*
3. *Grandiflorum.* Peru. *Shrub.*
4. *Umbellatum.* Nova Scotia. *Shrub.*
5. *Hirsutum*, a var. of *Obliquum.* Peru. *Shrub.*
6. *Buxifolium.* New Holland. *Shrub.*
7. *Sericeum.* New Holland. *Shrub.*
8. *Silaifolium.* New Holland. *Shrub.*
* 9. *Lanceolatum.* Lofty Mts. in Chili.
* 10. *Monospermum.* Mts. of Peru.
* 11. *Pinnatum.* In Munna.
* 12. *Obliquum.* Lofty Mts. in Chili.
} See *Flor. Peruv.* i. p. 62. t. 96, &c.

245. Pothos. *Spatha. Spadix* simplex floribus tectus. *Cal.* 0. *Petala* quatuor. *Bacca* disperma.
1. *Scandens.* India. *Shrub.*
2. *Acaulis.* On trees in the warm parts of America. *Peren.*
3. *Lanceolata.* Warm parts of America. *Per.*
4. *Crenata.* Island of St Thomas. *Peren.*
5. *Violacea.* Jamaica and West Indies. *Peren.*
6. *Crassinervia.* Woody mountains and warm parts of America, at the Caraccas. *Peren.*
7. *Cordata.* Warm parts of America.
8. *Macrophylla.* West Indies. *Peren.*
9. *Pinnata.* India. *Shrub.*
10. *Palmata.* Warm parts of America. *Peren.*
11. *Digitata.* Woody mountains and warm parts of America, at the Caraccas. *Shrub.*
12. *Pentaphylla.* Woods of Cayenne and Guiana. *Shrub.*
* 13. *Cannæfolia.* W. Ind. *Per.* (*Bot. Mag.* 603.)
* 14. *Obtusifolia.* Barbadoes. *Peren.* (*Hort. Kew.*)

253. Krameria. *Cal.* 0. *Cor.* 4-petala: *Nectario* superiore, 3-partito; inferiore 2-phyllo. *Bacca* sicca, echinata, 1-sperma.
1. *Ixina.* Cumana in America. *Shrub.*
* 2. *Triandria.* Sides of the Mountains in Peru. *Shrub.* (*Fl. Peruv.*)
* 3. *Cytisoides.* New Spain. (*Cavanilles.*)
* 4. *Linearis.* Clayey hills of Peru. *Shrub.* (*Fl. Peruv.*)

255. Rivina. *Cor.* 4-petala, persistens. *Cal.* nullus. *Bacca* 1-sperma: *Semine* lentiformi.
1. *Humilis.* Caribbee Islands, Jamaica, and Barbadoes. *Shrub.*
2. *Lævis.* America and Madagascar. *Shrub.*
3. *Brasiliensis.* America. *Shrub.*
4. *Octandra.* Warm parts of America. *Shrub.*
* 5. *Secunda.* Woods of Poguzo. *Shrub.* (*Fl. Per.*)

248. Chloranthus. *Cal.* 0. Petalum 3-lobum lateri germinis insidens. *Anth.* petalo accretæ. *Bacca* 1-sperma.
1. *Inconspicuus.* China and Japan. *Shrub.*

256. Salvadora. *Cal.* 4-fidus. *Cor.* 4-fida. *Bacca* 1-sperma. *Sem.* arillo vestitum.
1. *Persica.* Persian Gulf and E. Ind. *Shrub.*

257. Camphorosma. *Cal.* urceolatus: dentibus 2, oppositis, alternisque minimis. *Cor.* nulla. *Caps.* 1-sperma.
1. *Paleacea.* Cape of Good Hope. *Shrub.*
2. *Monspeliaca.* Sandy parts of Spain, Narbonne, and Tartary. *Shrub.*
3. *Acuta.* Italy and Tartary. *Peren.*
4. *Glabra.* Switzerland. *Peren.*
5. *Pteranthus.* Arabia, and sandy parts near Tunis. *Ann.*

See the new genus Pteranthus.

‡ 258. Alchemilla. *Cal.* 8-fidus. *Cor.* 0. *Sem.* 1.
1. *Capensis.* Cape of Good Hope.
2. *Vulgaris.* Europe in pastures, and in woods. *Peren.*
3. *Alpina.* Mountains of Europe. *Peren.*
4. *Pentaphyllea.* Mont Cenis, Furca, and St Gothard.
5. *Aphanoides.* New Granada. *Ann.*
6. *Aphanes.* Europe, and in the East. *Ann.*
* 7. *Hybrida.* Europe in pastures. *Per.* (*Lam.*)

244. Dorstenia. *Receptacul.* commune 1-phyllum carnosum, in quo *semina* solitaria nidulantur.
1. *Cordifolia.* Jamaica and Domingo. *Peren.*
2. *Brasiliensis.* Monte Video in Brasil, and the Straits of Magellan. *Peren.*
3. *Arifolia.* Shady places of Brasil. *Peren.*
4. *Houstoni.* Campechy. *Peren.*
5. *Contrajerva.* New Spain, Mexico, Peru, Tobago, and St Vincent's. *Peren.*
6. *Drakena.* Vera Cruz. *Peren.*
7. *Caulescens.* South America. *Peren.*
8. *Radiata.* Arabia Felix.
9. *Lucida.* Society Islands.
10. *Pubescens.* Society Islands.

246. Cometes. *Involucrum*, 4-phyllum, 3-florum. *Cal.* 4-phyllus. *Caps.* 3-cocca.
1. *Alterniflora.* Surat. *Ann.*

Sect. XII. *Flowers Incomplete, Superior.*

250. Gonatocarpus. *Cal.* 0. *Cor.* 4-fida. *Drupa* infera octogona 1-sperma.
1. *Micranthus.* Japan. *Shrub.*

254. Acæna. *Cal.* 4-phyllus. *Cor.* 4-petala. *Bacca* sicca, infera, 1-sperma retrorsum echinata.
1. *Elongata.* Mexico. *Shrub.*

See the New Genus Acæna of this Class.

242. Isnardia. *Cor.* nulla. *Cal.* 4-fidus. *Caps.* 4-locularis, cincta calyce.
1. *Palustris.* Rivers of Spain, Alsace, Russia, Jamaica, and Virginia. *Ann.*
* *Hastata.* Marshes of Peru. (*Fl. Peruv.*)

249. Elæagnus. *Cor.* nulla. *Cal.* 4-fidus, campanulatus, superus. *Drupa* infra calycem campanulatum.
1. *Angustifolia.* In the wet parts of Bohemia, France, Spain, Syria, and Cappadocia. *Shrub.*
2. *Orientalis.* In the East. *Shrub.*
3. *Spinosa.* Egypt. *Shrub.*
4. *Pungens.* Japan. *Shrub.*
5. *Latifolia.* Ceylon. *Shrub.*
6. *Crispa.* Japan. *Shrub.*
7. *Multiflora.* Japan. *Shrub.*
8. *Umbellata.* Mount Fakona, Japan. *Shrub.*
9. *Glabra.* Japan. *Shrub.*
10. *Macrophylla.* Japan. *Shrub.*

concavis corollæ immersæ. *Squamulæ* 4 hypogynæ. *Stigma* obliquum, dilatatum. *Nux* supera. *Involucrum* 2-4-phyllum, definite pauciflorum, vel uniflorum. (*R. Brown.*)

1. *Incurva*, the same as the *Protea incurva* of Willdenow.

PERSOONIA. *Pet.* 4, medio staminifera, supra recurva. *Glandulæ* 4 hypogynæ. *Germen* superum, 1-loculare, 1-2-spermum. *Drupa* nuce 1-2-loculari! (*Smith* and *R. Brown.*)

1. *Teretifolia.*
2. *Microcarpa.*
3. *Pinifolia.*
4. *Juniperina.*
5. *Hirsuta.*
6. *Mollis.*
7. *Linearis.*
8. *Lucida.*
9. *Virgata.*
10. *Flexifolia.*
11. *Scabra.*
12. *Spathulata.*
13. *Nutans.*
14. *Falcata.*
15. *Lanceolata.*
16. *Salicina.*
17. *Ferruginea.*
18. *Prostrata.*
19. *Elliptica.*
20. *Articulata.*
21. *Longifolia.*
22. *Graminea.*

All shrubby, and natives of New Holland and Van Diemen's Island.

See Smith, *Linn. Trans.* vol. iv. 9. and Brown's *Prodromus*, 371.

I. GREVILLEA. *Cor.* irregularis. *Antheræ* apicibus concavis corollæ immersæ. *Glandula* hypogyna, dimidiata. *Folliculus* superus, 1-locul. 2-spermus: loculo centrali. (*R. Brown.*)

1. *Punicea.*
2. *Dubia.*
3. *Sericea.*
4. *Linearis.*
5. *Stricta.*
6. *Riparia.*
7. *Parviflora.*
8. *Juniperina.*
9. *Australis.*
10. *Tenuifolia.*
11. *Pauciflora.*
12. *Aspera.*
13. *Concinna.*
14. *Arenaria.*
15. *Montana.*
16. *Acuminata.*
17. *Cinerea.*
18. *Mucronulata.*
19. *Baueri.*
20. *Occidentalis.*
21. *Sphacelata.*
22. *Phylicoides.*
23. *Buxifolia.*
24. *Goodii.*
25. *Venusta.*
26. *Pungens.*
27. *Dryandri.*
28. *Aspleniifolia.*
29. *Banksii.*
30. *Chrysodendrum.*
31. *Heliosperma.*
32. *Refracta.*
33. *Ceratophylla.*
34. *Mimosoides.*
35. *Polystachya.*
36. *Striata.*
37. *Lorea.*
38. *Gibbosa.*

Shrubby, and natives of New Holland and Van Diemen's Island.

See Brown's *Prodromus*, p. 375.

This genus contains also the *sericeum* and *ilicifolium* of the genus EMBOTHRIUM of Willdenow, under the same name.

II. HAKEA. *Cor.* 4-petala, irregularis. *Antheræ* apicibus concavis corollæ immersæ. *Glandula* hypogyna, dimidiata, (raro biloba.) *Folliculus* superus, ligneus, 1-locul. loculo excentrico. *Seminum* ala apicis longior nucleo. (*Schrader* and *R. Brown.*)

1. *Pugioniformis.*
2. *Rugosa.*
3. *Epiglottis.*
4. *Nodosa.*
5. *Flexilis.*
6. *Leucoptera.*
7. *Obliqua.*
8. *Sulcata.*
9. *Lissosperma.*
10. *Gibbosa.*
11. *Acicularis.*
12. *Vittata.*
13. *Cycloptera.*
14. *Suaveolens.*
15. *Microcarpa.*
16. *Trifurcata.*
17. *Varia.*
18. *Attenuata.*
19. *Linearis.*
20. *Florida.*
21. *Ilicifolia.*
22. *Nitida.*
23. *Amplexicaulis.*
24. *Prostrata.*
25. *Ceratophylla.*
26. *Undulata.*
27. *Oleifolia.*
28. *Saligna.*
29. *Marginata.*
30. *Ruscifolia.*
31. *Cinerea.*
32. *Dactyloides.*
33. *Elliptica.*
34. *Clavata.*
35. *Arborescens.*

All shrubby, and natives of New Holland and Van Diemen's Island.

This genus is the *Conchium* of Dr Smith. See Brown's *Prodromus*, 381. Species 10. is the *Banksia gibbosa* of Willdenow.

XIII. LAMBERTIA. *Cor.* 4-fida: laciniis spiraliter revolutis, staminiferis. *Squamulæ* hypogynæ 4. *Stigma* subulatum. *Folliculus* 1-locul. coriaceo-ligneus. *Sem.* marginata. *Involucrum* imbricatum, coloratum, deciduum. *Recept.* planum. (*R. Brown* and *Smith.*)

1. *Uniflora.*
2. *Inermis.*
3. *Formosa.*
4? *Echinata.*

Shrubby, and from New Holland. See Brown's *Prodromus*, p. 386.

XIV. XYLOMELUM. *Pet.* 4, supra medium staminifera, apice revoluta. *Glandulæ* hypogynæ 4. *Stigma* clavatum. *Folliculus* incrassato-ligneus, 1-locul. loculo excentrico. *Sem.* apice alata. (*Smith* and *R. Brown.*)

1. *Pyriforme.* New South Wales. *Shrub.*

See Brown's *Prodromus*, p. 387.

XV. TELOPEA. *Cor.* 4-fida, irregularis: tubo longitudinaliter fisso. *Stam.* apicibus concavis corollæ immersa. *Glandula* hypogyna, subannularis. *Folliculus* 1-locul. polyspermus. *Sem.* apice alata. *Involucrum* imbricatum, deciduum. (*R. Brown.*)

1. *Speciosissima.* This is the *Embothrium speciosissimum* of Willdenow.
2. *Truncata.* Shrub from New Holland.

This genus is the *Hylogyne* of Knight and Salisbury, and is part of the *Embothrium* of Smith, &c. See Brown's *Prodromus*, p. 388.

XVI. LOMATIA. *Cor.* 4-petala, irregularis. *Stam.* apicibus concavis corollæ immersa. *Glandulæ* hypogynæ 3. *Folliculus* 1-locul. polyspermus. *Sem.* apice alata. *Involucrum* nullum. (*R. Brown.*)

1. *Silaifolia.* This is the *Embothrium silaifolium* of Willdenow.
2. *Tinctoria.* 3. *Polymorpha.* 4. *Ilicifolia.*
5. *Longifolia.* Shrubby, and from New Holland.

This genus forms part of the *Embothrium* of Smith, &c. and is the *Tricondylus* of Knight and Salisbury. See Brown's *Prodromus*, p. 389.

XVII. BANKSIA. *Cor.* 1-petala. *Stam.* apicibus concavis corollæ immersa. *Squamulæ* hypogynæ 4. *Folliculus* ligneus 2-locul. loculis 1-spermis; dissepimento libero, bifido. *Amentum* flosculorum paribus tribracteatis. (*Linn. Fil.* and *R. Brown.*)

1. *Pulchella.*
2. *Sphærocarpa.*
3. *Nutans.*
4. *Collina.*
5. *Occidentalis.*
6. *Littoralis.*
7. *Marginata.*
8. *Depressa.*

Class IV. Tetrandria.

See the new genus Moenchia. *Ann.*
5. *Virginica.* Virginia, borders of springs.

‡ 272. Tillæa. *Cal.* 3 seu 4-partitus. *Petala* 3 seu 4. æqualia. *Caps.* 3 seu 4. polyspermæ.
1. *Aquatica.* Inundated parts of Germany and Sweden. *Ann.*
2. *Prostrata.* Wet parts of Germany. *Ann.*
3. *Vaillantii.* Wet parts of France. *Ann.*
4. *Capensis.* Cape of Good Hope. *Ann.*
5. *Perfoliata.* Cape of Good Hope. *Ann.*
6. *Umbellata.* Cape of Good Hope. *Ann.*
7. *Decumbens.* Cape of Good Hope. *Ann.*
8. *Muscosa.* In the wet parts of England, Italy, Sicily, and France.

* 9. *Connata.* Hills of Chancay. *Ann.* (*Fl. Per.*)

273. Myginda. *Cal.* 4-partitus. *Petala* 4. *Drupa* globosa.
1. *Uragoga.* Warm parts of America. *Shrub.*
2. *Rhacoma.* Sandy shores of the west of Jamaica. *Shrub.*
3. *Latifolia.* Caribbee Islands. *Shrub.*
* 4. *Rotundata.* Antilles. *Shrub.* (*Lamarck.*)
* 5. *Integrifolia.* Martinique. } *Encyc. Bot.*
* 6. *Ilicifolia.* St Domingo. *Shrub.* } iv. p. 396.

‡ 270. Ruppia. *Cor.* 0. *Cal.* 0. *Sem.* 4. pedicellata.
1. *Maritima.* Sea coasts and ditches of Europe and America. *Ann.*

NEW GENERA.

Order I. Monogynia.

New Genera.

I. Petrophila. *Cor.* 4-fida tota simul decidua. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ* nullæ hypogynæ. *Styli* basis persistens. *Nux* supera, lenticularis, hinc comosa, vel *Samara* basi barbata. (*R. Brown.*)

1. *Teretifolia.*
2. *Filifolia.*
6. *Acicularis.*
4. *Rigida.*
5. *Pulchella.*
6. *Fastigiata.*
7. *Pedunculata.*
8. *Diversifolia.*
9. *Squamata.*
10. *Trifida.*

The fifth of these species is the *Protea Pulchella* of Willdenow. All of them are shrubs, and natives of New Holland. See Brown's *Prodr.* p. 363, and *Linn. Trans.* x. p. 67.

II. Isopogon. *Cor.* 4-fida: tubo diutius persistente. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ.* nullæ hypogynæ. *Stylus* totus deciduus. *Nux* supera, ventricosa, undique comosa. (*R. Brown.*)

1. *Teretifolius.*
2. *Anethifolius.*
3. *Formosus.*
4. *Anemonifolius.*
5. *Ceratophyllus.*
6. *Trilobus.*
7. *Longifolius.*
8. *Cuneatus.*
9. *Attenuatus.*
10. *Polycephalus.*
11. *Buxifolius.*
12. *Axillaris.*

All shrubs, and natives of New Holland. See Brown's *Prodr.* p. 205. *Linn. Trans.* x. p. 71.

III. Protea. *Pet.* 4. quorum 3 superne cohærentia. *Antheræ* apicibus concavis corollæ immersæ. *Nux* supera, undique barbata, stylo persistente coronata. (R. Brown, *Linn. Trans.* x. p. 74.)

1. *Longiflora.*
2. *Formosa.*
3. *Maloleuca.*
4. *Pulchella.*
5. *Patens.*
6. *Longifolia.*
7. *Mucronifolia.*
8. *Tenax.*
9. *Canaliculata.*
10. *Turbiniflora.*
11. *Scolopendrium.*
12. *Amplexicaulis.*
13. *Humilis.*
14. *Acerosa.*

All shrubs, and natives of the Cape of Good Hope.

The preceding species are given by Brown under the reformed genus Protea, but not by Willd. in his genus Protea. Mr Brown ranks under the genus Protea, the species No. 30, 38, 40, 53, 55, 58, and 67, which we have already given from Willdenow in p. 125. The *Protea pulchella* of Mr Brown, is different from the plant of the same name in Willdenow.

IV. Leucospermum. *Pet.* 4 quorum 3 (raro 4) inferne cohærentia. *Antheræ* apicibus concavis corollæ immersæ. *Stylus* deciduus. *Nux* supera, ventricosa, lævis. (*R. Brown.*)

1. *Medium.* 2. *Conocarpum.* 3. *Grandiflorum.*

Besides these species, this genus contains also species 17, 19, 36, 60, of the genus Protea, p. 125. See *Linn. Trans.* x. p. 95.

V. Mimetes. *Cor.* 4. partita, regularis. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ* 4 hypogynæ. *Nux* supera, lævis. *Capitulum* multiflorum. *Receptaculum* planum. *Paleæ* deciduæ. (*R. Brown.*)

The species of this new genus are the *hirta*, *cucullata*, *divaricata*, and *purpurea*, already given under the genus Protea. See *Linnæan Trans.* x. p. 105.

VI. Serruria. *Cor.* 4-fida. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ* 4 hypogynæ. *Nux* supera. *Capitulum* multiflorum. *Receptaculum* convexum. *Paleæ* deciduæ. (R. Brown, *Linn. Trans.* x.)

1. *Pinnata.* Cape of Good Hope. *Shrub.*
2. *Pedunculata.* Cape of Good Hope. *Shrub.*
3. *Niveni.* Cape of Good Hope. *Shrub.*
4. *Phylicoides.* Cape of Good Hope. *Shrub.*

This genus contains also Species 3, 7, 8, 9, of the old genus Protea, p. 125.

VII. Nivenia. *Cor.* 4-fida, regularis. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ* 4 hypogynæ. *Stigma* verticale. *Nux* supera. *Involucrum* 4-phyllum, 4-florum, fructiferum induratum. (R. Brown, *Linn. Trans.* x.)

1. *Crithmifolia.* Cape of Good Hope. *Shrub.*

This genus contains also the *sceptrum*, *spathulata*, and *spicata*, of the genus Protea, in Willd.

VIII. Sorocephalus. *Cor.* 4-fida, regularis. *Antheræ* apicibus concavis corollæ immersæ. *Squamulæ* 4 hypogynæ. *Stigma* verticale. *Nux* supera. *Involucrum* 3-6-phyllum, definite pauciflorum vel uniflorum, fructiferum non mutatum. (R. Brown, *Linn. Trans.* x.)

This genus contains the *Protea lanata* and *imbricata* of Willdenow, under the same names.

IX. Spatalla. *Cor.* 4-fida. *Antheræ* apicibus

XXXI. Anadenia. *Perianth.* 4-phyllum, apicibus concavis staminiferis. *Antheræ* immersæ. *Glandulæ* nullæ hypogynæ. *Ovarium* dispermum. *Stigma* conicum. *Folliculus* unilocularis, abortione monospermus. *Semen* apterum. (*R. Brown.*)

1. *Pulchella.* 2. *Trifida.* 3. *Ilicifolia.*

All shrubby, and from New Holland. See Brown's *Prodromus*, p. 374.

XXXII. Orites. *Perianth.* 4-phyllum, regulare, foliolis apice recurvis. *Stamina* inserta supra medium foliolorum, iisque recurvatis exserta. *Glandulæ* 4-hypogynæ. *Ovarium* sessile, dispermum. *Stylus* strictus. *Stigma* obtusum, verticale. *Folliculus* coriaceus, unilocularis, loculo subcentrali. *Semina* apice alata. (*R. Brown.*)

1. *Diversifolia.* 2. *Revoluta.*

Shrubs from Van Diemen's Island. See Brown's *Prodromus*, p. 388.

XXXIII. Stenocarpus. *Perianth.* irregulare, foliolis distinctis, secundis. *Stamina* apicibus cavis foliolorum immersa. *Glandula* hypogyna unica, semiannularis. *Ovarium* pedicellatum, polyspermum. *Stylus* deciduus. *Stigma* obliquum, orbiculato-dilatatum planiusculum. *Folliculus* linearis. *Semina* basi alata! (*R. Brown.*)

1. *Salignus.* New Holland. *Shrub.*

This genus is the *Cybele* of Knight and Salisbury. See Brown's *Prodromus*, p. 390.

XXXIV. Zieria. *Cal.* 4-partitus. *Pet.* 4. *Stam.* glabra, glandulis insidentia. *Stylus* simplex. *Stigm.* quadrilobum. *Caps.* 4, coalitæ. *Sem.* arillata. (*Smith.*)

The plants of this genus are shrubby, and from Australasia.

XXXV. Lampocarya. *Spiculæ* undique imbricatæ, unifloræ; *squamis* exterioribus vacuis. *Setæ squamulæve* hypogynæ nullæ. *Stamina* 4, (nunc 3—6) filamentis persistentibus, elongatis. *Stylus* subulatus, trifidus. *Stigmata* indivisa. *Nux* ossea, nitens, basi persistenti styli cuspidata putamine supra incrassato, nucleo lævi.

1. *Aspera.* New South Wales.
2. *Hexandra.* Van Diemen's Island.

Sp. 2. is the *Gahnia trifida* of Labillard. The *Gahnia schœnoides* of Forster belongs to this genus. See Brown's *Prodromus*, p. 238.

XXXVI. Gymnostachys. *Spatha* minuta, carinata. *Spadix* cylindraceus, floribus undique tectus. *Perianth.* 4-partitum. *Stam.* 4, basi foliolorum inserta. *Ovar.* 1-spermum, ovulo pendulo. *Stig.* sessile, sphincteriforme. *Bacca* nuda. *Semen* albuminosum. *Embryo* inversus. (R.Brown, *Prodr.* 337.)

1. *Anceps.* New South Wales. *Peren.*

XXXVII. Fusanus. *Perianth.* profunde 4-fidum, rotatum, basi disco 4-lobo adnato; deciduum. *Drupa* globosa, calva, baccata. (*Linn.* and *R. Brown.*)

1. *Compressus.* Cape of Good Hope.
2. *Spicatus.* New Holland. *Shrub.*
3. *Acuminatus.* New Holland. *Shrub.*
4. *Crassifolius.* New Holland. *Shrub.*

See Brown's *Prodromus*, p. 355, and Persoon's *Synopsis*, vol. i. p. 144.

XXXVIII. Centranthera. *Cal.* hinc fissus, laciniis 5 inde cohærentibus. *Cor.* infundibul. limbo patenti, 5-lobo, inæquali. *Stam.* inclusa. *Antheræ* lobis basi calcaratis. *Stigma* lanceolatum. *Caps.* bilocularis, bivalvis, dissepimento contrario, placentifero, demum libero. (*R. Brown.*)

1. *Hispida.* New Holland. } Brown's *Prodro-*
2. *Indica?* East Indies. } *mus*, 438.

XXXIX. Diplanthera. *Cal.* 3-fidus, lacinia postica integra; lateralibus bifidis. *Cor.* bilabiata, fauce compressa; labio superiore obcordato: inferiore 3-partito, lobis subrotundis. *Stam.* 4, imæ corollæ inserta, exserta, subæqualia, adscendentia. *Anth.* loculis distinctis divergentibus, æstivatione juxta latera filamentorum reflexis. *Ovarium* bilocul. polyspermum; placentis 2, adnatis, in singulo loculo. *Stylus* situ staminum. *Stigma* bilamellatum. *Pericarpium*- - -. (*R. Brown*, 449.)

1. *Tetraphylla.* New Holland. *Shrub.*

XL. Sebæa. *Cal.* 4-5-partit. foliolis carissatis alatisve. *Cor.* 4-5-fida, marcescens. *Stam.* exserta: *Antheris* longitudinaliter dehiscentibus, defloratis apice calloso recurvis. *Stigmata* 2. *Caps.* valvis margine inflexis. *Placentæ* centrali demum libræ insertis. (*R. Brown*, p. 451.)

1. *Ovata.* New Holland and Van Diemen's Isl.

This shrub is the *Exacum ovatum* of Labillard.

XLI. Mitrasacme, or Mitragyne. *Col.* angulatus, 4 (raro 2) fidus. *Cor.* tubo angulato; limbo 4-part. æquali; decidua. *Stam.* æqualia, inclusa, (raro exserta.) *Anth.* posticæ. *Stylus* basi bifidus. *Caps.* inter divisuras styli dehiscens. (*Labillard.* and *R. Brown.*)

1. *Polymorpha.*
2. *Squarrosa.*
3. *Cinerescens.*
4. *Canescens.*
5. *Multicaulis.*
6. *Ramosa.*
7. *Laricifolia.*
8. *Prolifera.*
9. *Alsinoides.*
10. *Paludosa.*
11. *Pygmæa.*
12. *Elata.*
13. *Stellata.*
14. *Serpyllifolia.*
15. *Pilosa.*
16. *Phascoides.*
17. *Paradoxa.*
18. *Connata.*
19. *Ambigua.*

"A Gentianis legitimis," says Mr Brown, "parum diversa; propius tamen Exaco quam Scrophulariis accedit."

XLII. Guevina. *Cal.* 0. *Cor.* 4-petala: petalis apice concavis, tribus revolutis. *Stam.* cavitatibus petalorum insidentia. *Drupa* 1-sperma. (*Persoon.*)

1. *Avellana.* Woods of Chili. (*Flor. Peruv.*)

XLIII. Cryptospermum. *Cal.* communis 6-phyllus: foliolis patentibus inæqualibus; proprius? e paleis receptaculi, 3-phyllus. *Corollulæ* (sub 20) 4-fidæ, primo ovatæ. *Receptac.* globosum, paleaceum, subtus seminiferum. (*Caps.* 1-locul. in receptac. subglobosum coalitæ, medio longitudinaliter dehiscentes. (*Dr T. Young.*) (*Persoon.*)

1. *Youngii.* New Holland. *Peren.* See *Linn. Trans.* iii. p. 30.

XLIV. Nuxia. *Cal.* 4-fidus. *Cor.* 1-petala, 4-fida. *Stam*, in fauce. *Stigm.* truncatum. *Caps.* carnosa; 2-sperma. (*Lamarck.*)

1? *Elata.* 2. *Verticillata.*

Species 2 and 3 of Ægiphila, in Willdenow.

XLV. Higginsia. *Cal.* 4-dentatus. *Cor.* infundibulif. limbo 4-partit. *Stigm.* 2-labiatum, promi-

nens. *Bacca* bilocularis, bisulca, umbilicata, polysperma. (*Persoon.*)

1. *Aggregata*. Groves of Peru. *Shrub.*
2. *Obovata*. Shady places in Peru. *Shrub.*
3. *Verticillata*. Groves at Muna. *Shrub.*

See *Flor. Peruv.* Perhaps *Bertiera*, in Class V., is of this genus.

XLVI. Codonium. *Cal.* duplex; inferus 1-phyllus inæquale bifidus; superus turbinatus subinteger. *Cor.* campanulata. *Drupa* obovata. *Stigm.* capitatum. (*Persoon.*)

1. *Arborescens*. *Shrub.*

This genus has a great affinity to Lonicera, Class V.

XLVII. Centaurium. *Cal.* 4-partit. appressus. *Cor.* subcampanulata 4-partit. *Stigm.* crassum glandulosum subbifidum. *Caps.* (cal. et cor. persistentibus involucrata) 1-locul. 2-valvis, polysperma. (*Persoon.*)

1. *Vernum*. Lower Carolina. (*Michaux.*)
2. *Autumnale*. Lower Carolina. (*Michaux.*)

This genus resembles Exacum, several species of which perhaps belong to it.

XLVIII. Coutoubea, or Picrium of Schreber. *Cal.* 4. fid. *Cor.* 1-pet. 4-fida: *Squam.* 4, cucullatæ. *Stig.* bilabiatum. *Caps.* 2-valvis, polysperma.

1. *Spicata*, the *Exacum spicatum* of Willd.
2. *Ternifolia*. Panama. *Ann.* (*Cavanilles.*)
8. *Purpurea*, the *Exacum ramosum* of Willd.

XLIX. Frasera. *Cal.* 4-fid. *Cor.* 4-fida patens: Petala medio glandula barbata. *Caps.* compressa submarginata, 2-locul. *Sem.* pauca imbricata. (*Pers.*)

1. *Caroliniensis*. Marshes of Carolina. (*Mich.*)

L. Bartonia. *Cal.* 4-phyll. *Cor.* campanul. 4-fida, persistens. *Caps.* 1-locul. 2-valvis, polysperma. (*Persoon.*)

1. *Tenella*. Philadelphia, resembling *Buffonia tenuifolia*. See Willd. *Act. Soc. Berol.* iv. v. 3.

LI. Azima. *Cal.* 4-fid. urceolatus. *Cor.* 4-pet. *Bacca* 2-locul. loculis 2-spermis: 1 sæpius abortivo. (*Persoon.*)

1. *Tetracantha*, the *Monetia barlerioides* of Willdenow.

LII. Drapetes. *Cal.* 0. *Cor.* infundibulif. limbo 4-fido. *Recept.* pedicellata, barbata: *Sem.* 1 tectum. (Flor. aggregato fasciculati.) (*Persoon.*)

1. *Muscoides*. (Lamarck, *Journ. d'Hist. Nat.* No. 5. p. 186, t. 10.)

LIII. Cansiera. *Cal.* globoso-urceolatus, 4-dentatus, inferus. *Nect.* 4, dentata germen cingentia. *Bacca* 1-sperma. (*Jussieu.*)

1. *Scandens*. Coromandel. (*Roxburgh.*)

LIV. Pteranthus. *Cal.* 4-part. persistens, lacin. concavis: 2 majoribus cristatis. *Cor.* 0. *Filam.* basi connata. *Caps.* membranacea, 1-sperma, cal. tecta. (*Persoon.*)

1. *Echinatus*. Barbary and Arabia. *Ann.* (Desfont. *Atl.*) The *Camphorosma pteranthus* of Willdenow.

LV. Orthostemon. *Cal.* tubulosus, 4-dentat. *Cor.* limbo brevi, 4-part. fauce nuda, marcescens. *Stam.* æqualia, exserta: *antheris* longitudinaliter dehiscentibus, apice muticis defloratis strictis. *Stig.* 2. subrotunda. (*R. Brown.*)

1. *Erectum*. New Holland.

An intermediate genus between *Centaurium* and *Erythrea*. See Brown's *Prod.* p. 451.

Order II. Digynia.

LVI. Tetrarrhena. *Gluma* uniflora, bivalvis, perianthio minor. *Perianth.* sessile, duplex, utrumque bivalve, absque squamulis exterioribus fasciculisve pilorum. *Squamulæ* 2 hypogynæ, oppositæ, valvulis perianthii alternantes. *Stam.* 4! *Stigmata* plumosa. (*R. Brown.*)

1. *Distichophylla*. Van Diemen's Island.
2. *Acuminata*. Van Diemen's Island.
3. *Juncea*. New Holland.
4. *Lævis*. New Holland.

Sp. 1, is the *Ehrharta distichophylla*. of Labillard. See Brown's *Prodromus* p. 209.

LVII. Microlæna. *Gluma* uniflora, minuta, bivalvis. *Perianth.* pedicello barbato glumam superante insidens, duplex, utrumque bivalve, imberbe, exterioris valvulis subæqualibus, apice aristatis. *Squamulæ* hypogynæ 2, oppositæ, valvulis perianthii alternantes. *Stam.* 4! *Stigmata* 2, sessilia, plumosa. (*R. Brown.*)

1. *Stipoides*. New Holland and Van Diemen's Island. (The *Ehrharta stipoides* of Labillard. See Brown's *Prodromus*, p. 210.

LVIII. Aphanes. *Cal.* 8-fid. lacin. alternis minimis. *Cor.* 0. *Sem.* 2, calyce vestita: uno interdum abortivo. (*Stam.* 1, 2, 4.) (*Persoon.*)

1. *Arvensis*. the *Alchemilla Aphanes* of Willd.
2. *Tripartita*. Mountains and springs of Pillao and Tarma.
3. *Orbiculata*. Cold and wet mountains of Peru.
4. *Pinnata*. Cold and wet mountains of Peru.

See *Flor. Peruv.* i. 68.

The three last species are given by Persoon under this genus, on account of their having two styles and two seeds; but he supposes that they may be included in different genera, since they are diandrous, and have styles of a different structure. *Synops.* i. 150.

LIX. Pagamea. *Cal.* 4-dentatus persistens. *Cor.* 4-fida, urceolaris, intus villosa. *Drupa* supera, 2-locularis, nuculis 2, bilocularibus. (*Persoon.*)

1. *Guianensis*. Guiana. *Shrub.* (*Lamarck.*)

Order IV. Tetragynia.

LX. Radiola. *Cal.* multifidus. *Pet.* 4. *Caps.* supera 8-locul. 8-valvis. *Sem.* solitaria. (Smith, *Flor. Brit.* i. p. 202.)

1. *Millegrana*. Britain. *Ann.* The *Linum radiola* of Willdenow.

LXI. Riqueria. *Cal.* triplex. *Pet.* 4, concava. *Filam.* compressa. *Caps.* 4-locul. stylis coronata. (*Persoon.*)

1. *Avenia*. Groves of Peru. *Shrub.* (*Fl. Per.*)

LXII. Mœnchia. *Cal.* 4-phyll. connivens: lacin. lanceolatis acutis. *Cor.* subbrevior: petal. integris. *Caps.* evalvis, 1-locul. apice 5-fariam dehiscens. *Sem.* reniformia scabra. (*Persoon.*)

1. *Glauca*. The *Sagina erecta* of Linn. *Ann.*

REMARKS ON THE CLASS TETRANDRIA.

Under this class Persoon ranks the genera LINNÆA, and SPIELMANNIA, which, after Willdenow, we have given in the class DIDYNAMIA.

The genus PARIETARIA, given by Dr Smith under this class, and by Persoon under the class MONŒCIA, will be found in the present article in the class POLYGAMIA.

The following plants, being tetrandrous, might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

MONOGYNIA.

Valeriana *supina, villosa, Sibirica.* Boerhavia *tetrandra.* Justicia *pulcherrima.* Lycium *tetrandrum.* Cordia *tetrandra.* Solanum *flexuosum.* Some species of Citharexylum. Convallaria *bifolia.* Several species of Coffea. Rondeletia *pilosa, virgata.* Hillia *tetrandra.* Guettarda *elliptica, membranacea.* Portlandia *tetrandra.* Evonymus *Europæus, Japonicus,* &c. Portulaca *meridiana.* Several species of Cinchona. Laugeria *coriacea.* Melastoma *tetrandra.* Cardamine *hirsuta.* Lythrum *thymifolium.* Prinos *glaber, nitidus.* Peplis *Indica.* Strœmia *tetrandra.* Thesium *alpinum.* Corchorus *Coreta.*

DIGYNIA.

Gentianæ quadrifidæ. Swertia *corniculata, dichotoma,* &c. Ulmus *suberosa.* Herniaria *fruticosa, glabra?*

TETRAGYNIA.

Cerastium *tetrandrum.*

CLASS V. PENTANDRIA.

ORDER I. MONOGYNIA.

SECT. I. *Flowers Monopetalous, Inferior, and with one Seed.*

373. MIRABILIS. *Cor.* infundibulif. supera. *Cal.* inferus. *Nectarium* globosum, germen includens.
  1. *Dichotoma.* Mexico. *Peren.*
  2. *Jalapa.* East and West Indies. *Peren.*
  3. *Longiflora.* Cold mts. of Mexico. *Peren.*

295. TRIGUATUS. *Cor.* infundibuliformis, limbo 5-partito: laciniis bilobis. *Nectar.* cyathiforme germen cingens. *Stam.* nectario inserta tubo adglutinata. *Cal.* 0. *Nux* 5-angul. 1-sperma.
  1. *Admirabilis.* California.

318. PLUMBAGO. *Cor.* infundibulif. *Stamina* squamis basin corollæ claudentibus inserta. *Stigma* 5-fidum. *Sem.* 1. oblongum tunicatum.
  1. *Europæa.* South of Europe. *Peren.*
  2. *Lapathifolia.* Spain. *Peren.*
  3. *Capensis.* Cape of Good Hope. *Shrub.*
  4. *Zeylanica.* India and New Holland. *Shrub.*
  5. *Rosea.* India. *Shrub.*
  6. *Scandens.* Warm parts of America. *Shrub.*
  7. *Auriculata.* India. *Shrub.*
  * 8. *Tristis.* Cape of Good Hope. *Shrub.*
  See Brown's *Prodromus*, p. 425.

317. WEIGELIA. *Cal.* 5 phyllus. *Cor.* infundibulif. *Stylus* e basi germinis! *Stigma* peltatum. *Sem.* 1.
  1. *Japonica.* Japan *Shrub.*
  2. *Coræensis.* Japan. *Shrub.*

470. QUINCHAMALA, or QUINCHAMALIUM. (*Pers.*) *Cal* inferus 5-dentatus. *Cor.* tubulosa supera. *Anth.* sessiles. *Sem.* 1.
  1. *Chilensis.* Chili.

408. CORYMBIUM. *Cal.* 2-phyllus inferus. *Cor.* infundibuliformis, supera. *Anth.* connatæ. *Semen* lana involutum.
  1. *Scabrum.* *Peren.*
  2. *Filiforme.*
  3. *Glabrum.* *Peren.*
  4. *Villosum.*
  All from the Cape of Good Hope. This genus is ranked by Persoon under SYNGENESIA. See *Synopsis*, ii. p. 501.

SECT. II. *Flowers Monopetalous, Inferior, and with two Seeds. Leaves rough.*

281. CERINTHE. *Corollæ* limbus tubulato-ventricosus: fauce pervia. *Sem.* 2, bilocularia.
  1. *Major.* Siberia and Switzerland. *Ann.*
  2. *Aspera.* South of Europe. *Ann.*
  3. *Minor.* Fields of Austria, Stiria and Jena. *Bien.*

287. MESSERSCHMIDIA. *Cor.* infundibulif. fauce nuda. *Bacca* suberosa, bipartibilis: singulo dispermo.
  1. *Fruticosa.* Teneriffe, and the Canary Isles. *Shr.*
  2. *Arguzia.* Dauria. *Peren.*
  3. *Cancellata.* Spain.
  See TOURNEFORTIA.

SECT. III. *Flowers Monopetalous, Inferior, with four Seeds. Leaves rough.*

‡ 286. ECHIUM. *Cor.* irregularis, fauce nuda.
  1. *Fruticosum.* Ethiopia. *Shrub.*
  2. *Candicans.* High rocks of Madeira., *Shrub.*
  3. *Giganteum.* Rocks of Teneriffe, *Shrub.*
  4. *Strictum.* Rocks of Teneriffe. *Bien.*
  5. *Argenteum.* Black mountains, Cape of Good Hope. *Shrub.*
  6. *Sericeum.* Egypt. *Shrub.*
  7. *Setosum.* Egypt. *Shrub.*
  8. *Trichotomum.* *Shr.*
  9 *Hispidum* *Shrub.*
  10. *Paniculatum.* *Shr.*
  11. *Trigonum.* *Shrub.*
  12. *Capitatum.* *Shrub.*
  13. *Lævigatum.* *Shrub.*

* 15. *Corymbosa*. Plains of Chili. *Ann.* } See *Flor. Peruv.* ii. p. 5.
* 16. *Granulosa*. Sandy parts of Peru.
* 17. *Humilis*. Plains of Peru. *Ann.*
* 18. *Gracilis*. Plains of Chili. *Ann.*
* 19. *Borbonica*. Bourbon. (*Lamarck.*)
* 20. *Cynoglossoides*. Cape of G. H. (*Lamarck.*)
* 21. *Australis*. N. Holland and Van. Diem. Isl.

Sp. 7, 8, 9, 10, 11, 12, 18, 19, 20, are given by Persoon under the subgenus *Lappula*. *Sem.* 1. fructibus echinatis. Mr Brown, (*Prodr.* p. 494,) thinks that these species should constitute a distinct genus. He also refers Sp. 5, 6 to ANCHUSA.

SECT. IV. *Flowers Monopetalous, Inferior, with five Seeds.*

289. NOLANA. *Cor.* campanulata. *Stylus* inter germina. *Nuces* 5, 2-4 loculares.
1. *Prostrata*. Peru. *Ann.*

SECT. V. *Flowers Monopetalous, Inferior. Seed in a Capsule.*

374. CORIS. *Cor.* 1-pet. irregularis. *Cal.* spinosus. *Caps.* 5-valvis, supra.
1. *Monspeliensis*. Shores in the S. of Eur. *Ann.*

303. HYDROPHYLLUM. *Cor.* campanulata, interne striis 5, melliferis, longitudinalibus. *Stigma* 2-fidum. *Caps.* globosa, 2-valvis.
1. *Virginicum*. Virginia. *Peren.*
2. *Canadense*. Canada. *Peren.*
* 3. *Magellanicum*. *Peren.* (*Lamarck.*)
* 4. *Appendiculatum*. Mts. of Tenassee. (*Michaux.*)

434. GALAX. *Cor.* hypocraterif. *Cal.* 10-phyllus. *Caps.* 1-locularis, 2-valvis, elastica.
1. *Aphylla* or *Cordifolia*. Virginia. *Shrub.*

2. BARRERIA. *Cal.* 5-dentatus. *Cor.* rotata, laciniis scrobiculatis. *Filamenta* dilatata. *Anth.* tetragonæ marginatæ, marginibus cohærentibus. *Caps?*
1. *Theobromæfolia*. In woods near the river Sinemari in Guiana. *Shrub.*

294. CORTUSA. *Cor.* rotata, fauce annulo elevato. *Caps.* 1-locularis ovalis, apice 5-valvi.
1. *Mathioli*. Mountains of Austria, Siberia, and Silesia. *Peren.*
2. *Gmelini*. Siberia. *Peren.*

‡ 300. ANAGALLIS. *Cor.* rotata. *Caps.* circumcissa.
1. *Arvensis*. Engl. and other parts Europe. *Ann.*
2. *Pumila*. In the high mountains and marshy places of Jamaica. *Ann.*
3. *Monelli*. Italy. *Peren.*
4. *Latifolia*. Spain. *Ann.*
5. *Linifolia*. Spain and Portugal. *Ann.*
6. *Tenella*. France, England, Italy, in boggy places. *Peren.*
* 9. *Fruticosa*. Morocco. *Bien.* (*Venten.*)
* 10. *Cærulea*.
* 11. *Ovalis*. Hills of Peru. *Ann.* (*Flor. Peruv.*)
* 12. *Alternifolia*. Chili at Conception.
* 13. *Collina*. Barbary.
* 14. *Crassifolia*. Near Dax, in France.

‡ [illegible]. LYSIMACHIA. *Cor.* rotata. *Caps.* globosa, mucronata, 10 valvis.
1. *Vulgaris*. Engl. and other parts of Eur. *Per.*
2. *Decurrens*. Island of Tanna.
3. *Ephemerum*. Media and Siberia. *Ann.*
4. *Atropurpurea*. In the East. *Ann.*
5. *Dubia*. In the East. *Bien.*
6. *Stricta*, or *Angustifolia* of Persoon. North America. *Peren.*
7. *Thyrsiflora*. Britain, North of Europe in marshy places, and in the Alps. *Peren.*
8. *Quadrifolia*. Virginia and Canada. *Peren.*
9. *Punctata*. Holland among reeds, also in Switzerland, Siberia, and Carniola. *Peren.*
10. *Linum stellatum*. Hills of France and Italy. *Ann.*
11. *Mauritiana*. Island of Bourbon.
12. *Nemorum*. In the groves of Germany, France, and England. *Peren.*
13. *Japonica*. Japan. (Like species 20.) *Ann.*
14. *Nummularia*. England and other parts of Europe. *Peren.*
* 15. *Quadriflora*. North America. *Peren.*
* 16. *Racemosa*. New York. *Peren.* (*Michaux.*)
* 17. *Ciliata*. New York and Connecticut. (*Mich.*)
* 18. *Hybrida*. Carolina and Pennsylvania. (Willdenow, *N. A. Soc. Ber.*)
* 19. *Heterophylla*. Georgia. (*Michaux.*)
* 20. *Maculata*. New South Wales. (*Brown.*)

Mr Brown thinks that this genus ought to be divided. *Prodromus*, p. 428.

300. DORÆNA. *Cor.* 5-fida. *Stigma* emarginatum. *Capsula* 1-locul. 1-valv. polysperma.
1. *Japonica*. Japan. *Shrub.*

‡ 298. CYCLAMEN. *Cor.* rotata, reflexa, tubo brevissimo: fauce prominente. *Bacca* tecta capsula.
1. *Coum*. South of Europe. *Peren.*
2. *Europæum*. Shady woods of England, Silesia, Bohemia, and Austria. *Peren.*
3. *Persicum*. Island of Cyprus. *Peren.*
4. *Hederæfolium*. Italy. *Peren.*
5. *Indicum*. Ceylon. *Peren.*

297. DODECATHEON. *Cor.* rotata, reflexa. *Stam.* tubo insidentia. *Caps.* 1-locularis, oblonga.
1. *Meadia*. Virginia. *Peren.*
* 2. *Integrifolium*. Virginia. *Peren.* (*Michaux.*)

296. SOLDANELLA. *Cor.* campanulata, lacero-multifida. *Caps.* 1-locularis, apice multidentata.
1. *Alpina*. Mountains of Switzerland, Austria, and the Pyrenees. *Peren.*

395. LITA. *Cor.* hypocraterif. *Anth.* in tubo corollæ sessiles. *Stigma* truncatum. *Caps.* 1-locul. 2-valvis.
1. *Rosea*. Woods of Guiana. *Peren.*
2. *Cærulea*. Woods of Guiana. *Peren.*
* 3. *Spathacea*. Guiana. } See Lamarck, *Ill.* p. 491.
* 4. *Breviflora*. Guiana.
* 5. *Uniflora*.
* 6. *Aphylla*. Trunks of trees in Martinique. (*Jacq.*)

These new species, along with Sp. 1 and 2, are given by Persoon in Class V. under VOHIRIA.

‡ 293. PRIMULA. *Involucr.* umbellulæ. *Corollæ* tubus cylindricus: ore patulo.
1. *Verticillata*. Mount Kurma near rivers. *Per.*
2. *Veris*. England; and in dry clayey soils in the woody parts of Europe. *Peren.*

3. *Elatior*. Engl. and other parts of Eur. *Peren.*

4. *Farinosa*. Mountains of Europe, and in the boggy meadows of Germ. Engl. and Swed. *Per.*

5. *Cortusoides*. Siberia. *Peren.*

6. *Villosa*. Mts. of Carinthia and Switzerl. *Per.*

7. *Nivalis*. Dauria, beside cold springs. *Per.*

8. *Longiflora*. Mountains of Switzerland, the Tyrol, Italy, Carinthia, Carniola, and Croatia. *Peren.*

9. *Glutinosa*. Mountains in Upper Carinthia and the Tyrol. *Peren.*

10. *Marginata*. Mts. of Switzerland. *Peren.*

11. *Auricula*. Mts. of Switzerland, Austria, Styria, Carniola, and about Astracan. *Peren.*

12. *Gigantea*. Siberia. *Peren.*

13. *Minima*. Mts. of Switzerland, Austria, Carniola, Carinthia, &c. *Peren.*

14. *Integrifolia*. Mts. of Switzerland, Austria, Stiria, Carniola, and the Pyrenees. *Peren.*

15. *Carniolica*. Carniola. *Peren.*

16. *Sinmarchica*, or *Norvegica*. Norway. *Peren.*

17. *Viscosa*. Mountains of Piedmont. *Peren.*

18. *Sibirica*. Low meadows in Siberia. *Peren.*

*19. *Vulgaris*, or *Acaulis* of Persoon. Britain. *Peren.* Smith, *Flor. Brit.*

*20. *Longifolia*. Levant. *Peren.*

292. ANDROSACE. *Involucrum* umbellulæ. *Corrollæ* tubus ovatus: ore glanduloso. *Caps.* 1 locularis, globoso.

1. *Maxima*. Growing corns in Germany, Austria, and Switzerland. *Ann.*

2. *Elongata*. Austria and Germany. *Ann.*

3. *Filiformis*. Siberia. *Ann.*

4. *Septentrionalis*. Mountains of Lapland, Russia, and Germany. *Ann.*

5. *Odoratissima*. Mts. in Cappadocia. *Peren.*

6. *Villosa*. Mts. of Carniola, the Pyrenees. *Per.*

7. *Chamæjasme*. Mts. of Austria. *Peren.*

8. *Obtusifolia*. Mountains of Switzerland, Italy, and Stiria. *Ann.*

9. *Lactea*. Austria and Switzerland, &c. *Peren.*

10. *Carnea*. Mountains of Switzerland and the Pyrenees. *Peren.*

*11. *Spathulata*. South America. (*Cavanilles.*)

291. ARETIA. *Cor.* hypocraterif. 5-fida: tubo ovato. *Stigma* depresso-capitatum. *Caps.* 1-locularis, globosa, subpentasperma.

1. *Helvetica*. Mountains in the west of Switzerland. *Peren.*

2. *Alpina*. Found in the Vallais, at the hill called Loch. *Peren.*

3. *Vitaliana*. Mountains of Switzerland and Italy, and on the Pyrenees. *Peren.*

302. BACOPA. *Cal.* 5-partit. laciniis inæqualibus. *Cor.* hypocrateriformis. *Stigma* capitatum. *Caps.* 1-locul.

1. *Aquatica*. Beside rivers at Cayenne.

‡301. HOTTONIA. *Cor.* hypocraterif. *Stamina* tubo corollæ imposita. *Caps.* 1-locularis.

1. *Palustris*. Ditches and marshes of Britain, and the more northerly parts of Eur. *Peren.*

2. *Sessiliflora*. India.

3. *Indica*. India.

4. *Serrata*. India.

313. SHEFFIELDIA. *Cal.* 5-fidus. *Cor.* campanulata. *Filam.* 10 alterna sterilia. *Caps.* 1-locul. 5-valv. polysperma.

1. *Repens*. New Zealand. *Peren.*

Persoon and Mr Brown make this plant a variety of *Samolus littoralis*. *Synopsis*, i. p. 171; *Prodromus*, p. 428.

‡299. MENYANTHES. *Cor.* hirsuta. *Stigma* 2-fidum. *Caps.* 1-locularis.

1. *Nymphæoides*. Eng. France, Germany. *Per.*

2. *Ovata*. In water at the Cape of G. H. *Per.*

3. *Indica*. Malabar, Ceylon, Cape of Good Hope, and Jamaica. *Peren.*

4. *Trifoliata*. Engl. and other parts of Eur. *Per.*

*5. *Exaltata*. New South Wales. *Peren.*

*6. *Trachysperma*. North America. (*Michaux.*)

479. ALLAMANDA. Contorta. *Caps.* lentiformis, erecta, echinata, 1-locularis. 2-valvis, polysperma.

1. *Cathartica*. Guiana, Surinam. *Shrub.*

307. THEOPHRASTA. *Cor.* campanulata, laciniis et divisuris obtusis. *Caps.* 1-locularis, globosa, maxima, polysperma.

1. *Americana*. Equinoctial America. *Shrub.*

2. *Longifolia*. Caraccas. *Shrub.*

371. GENIOSTOMA. *Cor.* infundibulif. fauce barbata. *Cal.* inferus 5-fid. *Stigma* cylindricum sulcatum. *Caps.* 2-locularis polysperma.

1. *Rupestris*. Island of Tanna.

308. SPIGELIA. *Cor.* infundibulif. *Caps.* didyma, 1-locularis, polysperma.

1. *Anthelmia*. Cayenne and Brasil. *Ann.*

2. *Marilandica*. Virginia, Maryl. Carol. *Per.*

*3. *Fruticulosa*. Cayenne. (*Persoon.*)

334. SPHENOCLEA. *Cor.* 5-fida, calyce minor. *Caps.* 2-locul. compressa circumscissa. *Stigma.* Capitatum persistens.

1. *Zeylanica*. Malabar, Ceylon, and Guinea. *Ann.*

309. OPHIORHIZA. *Cor.* infundibulif. *Germen* 2-fidum. *Stigmata* 2. *Fructus* bilobus.

1. *Mungos*. East Indies. *Peren.*

2. *Mitreola*. South America. *Ann.*

3. *Subumbellata*. Otaheite. *Shrub.*

321. RETZIA. *Cor.* cylindrica extus villoso. *Stigma* bifidum. *Caps.* 2-locularis polysperma.

1. *Spicata*. Highest mountains of the Cape of Good Hope. *Shrub.*

‡323. CONVOLVULUS. *Cor.* campanulata, plicata. *Stig.* 2. *Caps.* 2-locularis: loculis dispermis.

1. *Arvensis*. Engl. and other parts of Eur. *Per.*

2. *Sepium*. England and other parts of Europe, America, and Peru. *Peren.*

3. *Wheleri*. The *Ipomæa sagittata* of Persoon. Barbary and Valentia.

4. *Scammonia*. Syria, Mysia, and Cappadocia. *Peren.*

5. *Involucratus*. Guinea.

6. *Sibiricus*. Siberia. *Ann.*

7. *Rupestris*. Siberia? *Peren.*

8. *Farinosus*. Madeira. *Ann.*

9. *Lanuginosus*. In the East.

10. *Incanus*. America.

11. *Emarginatus*. East Indies.

12. *Medium*. India. *Ann.*

13. *Filicaulis*. Guinea. *Ann.*

14. *Tridentatus*. Barren parts of India. *Ann.*

15. *Angustifolius*. East Indies.

Class V. Pentandria.

16. *Japonicus.* Japan, near Jedo and Nagasaki.
17. *Dentatus.* East Indies.
18. *Hastatus.* Egypt.
19. *Panduratus.* Sandy parts of Virginia. *Peren.*
20. *Bracteatus.* East Indies.
21. *Bicolor.* East Indies.
22. *Trilobus.* Cape of Good Hope.
23. *Platanifolius.* South America. *Peren.*
24. *Acuminatus.* Island of St Cruz.
25. *Carolinus.* Carolina. *Peren.*
26. *Hederaceus.* The *Ipomæa punctata* of Persoon. India, Asia, Africa, America. *Ann.*
27. *Nil.* America. The *Ipomæa hederacea.* *Ann.*
28. *Purpureus.* America. *Ann.*
29. *Obscurus.* China, Batavia, Ceylon, and Surinam. *Ann.*
30. *Flavus.* East Indies.
31. *Angularis.* Java.
32. *Batatas.* East and West Indies. *Peren.*
33. *Maximus.* Ceylon. *Peren.*
34. *Biflorus.* China. *Ann.*
35. *Gemellus.* Java and Tranquebar.
36. *Striatus.* East Indies.
37. *Pentanthus.* *Shrub.*
38. *Guianensis.* Banks of rivers in Cayenne and Guiana. *Peren.*
39. *Capitatus.* East Indies.
40. *Hispidus.* East Indies.
41. *Parviflorus,* or *paniculatus.* Java and New Holland. (*Brown.*)
42. *Triflorus.* East Indies.
43. *Verticillatus.* America.
44. *Violaceus.* Island of Santa Cruz.
45. *Umbellatus.* Martinique, Domingo, and Jamaica. *Peren.*
46. *Tuguriorum.* New Zealand.
47. *Cordifolius.* Cape of Good Hope.
48. *Bifidus.* Java and East Indies.
49. *Malabaricus.* Sandy parts of Malabar. *Shrub.*
50. *Cœlestis.* Isl. of Tanna in the Pacific Ocean.
51. *Canariensis.* Canary Islands. *Shrub.*
52. *Ferrugineus.* South America. *Shrub.*
53. *Muricatus.* Surat. *Ann.*
54. *Triqueter.* Santa Cruz.
55. *Anceps.* Ceylon, Java.
56. *Turpethum.* Ceylon and New Holland, given under Ipomæa by R. Brown. *Peren.*
57. *Grandiflorus.* India. *Shrub.*
58. *Speciosus.* East Indies. *Shrub.*
59. *[illegible]* Japan.
60. *Peltatus.* Amboyna and Society Islands.
61. *Jalapa.* Mexico and Vera Cruz. *Shrub.*
62. *[illegible]* Woods of Guiana. *Shrub.*
63. *[illegible]* Carolina.
64. *[illegible]* India. *Shrub.*
65. *[illegible]* Jamaica.
66. *[illegible]* Island of Bourbon.
67. *[illegible]* [illegible] parts in Peru. *Peren.*
68. *[illegible]* Leeward Islands and Santa Cruz.
69. *Althæoides.* Hills in south of Europe, Africa, and in the East. *Peren.*
70. *[illegible]* Egypt. *Peren.*
71. *[illegible]* Santa Cruz.
72. *[illegible]* [illegible] hills of India and East. *Ann.*
73. *[illegible]* East Indies.
74. *Dissectus.* America. *Ann.*
75. *Mucronatus.* Island of Tanna, New Holland, (*R. Brown,* p. 486.)
76. *Macrocarpus.* America. *Ann.*
77. *Paniculatus.* Sandy parts of Malabar. *Peren.*
78. *Macrorhizos.* America.
79. *Quinquefolius.* America. *Ann.*
80. *Venosus.*
81. *Glaber.* Cayenne. *Peren.*
82. *Pentaphyllus.* America. *Ann.*
83. *Tenuifolius.* East Indies.
84. *Siculus.* Sicily. *Ann.*
85. *Pentapetaloides.* Majorca. *Ann.*
86. *Lineatus.* Sea coasts of Spain, Sicily, and the Mediterranean. *Peren.*
87. *Saxatilis.* Spain, Italy, and Taurida. *Peren.*
88. *Cneorum.* Spain, Candia, Syria. *Shrub.*
89. *Linearis.* *Shrub.*
90. *Cantabrica.* South of Europe, Africa, and Taurida. *Peren.*
91. *Ammanni.* Siberia, at the Jenisey and Lake Baikal. *Peren.*
92. *Pilosellæfolius.* In the East. *Peren.*
93. *Dorycnium.* In the East. *Shrub.*
94. *Proliferus.* South America. *Shrub.*
95. *Lanatus.* Lower Egypt and Mount Sinai. *Shr.*
96. *Hystrix.* Arabia. *Shrub.*
97. *Spinosus.* Dry hills at the river Irtin Sib. *Shr.*
98. *Scoparius.* Teneriffe near St Crux. *Shrub.*
99. *Œnotheroides.* Cape of Good Hope.
100. *Floridus.* Rocks of Teneriffe. *Shrub.*
101. *Cuneatus.* East Indies. *Shrub.*
102. *Corymbosus.* America.
103. *Spithamæus.* Virginia.
104. *Persicus.* Persia, shore of the Caspian Sea. *Per.*
105. *Tricolor.* Africa, Barbary, Spain, and Sicily. *Ann.*
106. *Acetosæfolius.* South America. *Peren.*
107. *Repens.* India and Arabia Felix. *Peren.*
108. *Reptans.* India.
109. *Edulis.* Japan. *Peren.*
110. *Hirtus.* India.
111. *Soldanella.* England and Carniola. *Ann.*
112. *Imperati.* Sea shores of Naples.
113. *Pes capræ.* India and New Holland. *Ann.*
114. *Brasiliensis.* Brasil, N. Holl. Domingo. *Per.*
115. *Multifidus.* Cape of Good Hope.
116. *Sublobatus.* India. *Ann.*
117. *Capensis.* Cape of Good Hope.
118. *Sagittatus.* Cape of Good Hope.
119. *Littoralis.* America.
120. *Martinicensis.* Shady and wet pts. of Martiniq.
• 121. *Pannifolius.* *Peren.*
• 122. *Suffruticosus.* Madeira. *Peren.*
• 123. *Erubescens.* New South Wales. *Bien.*
• 124. *Bryoniæfolius.* China. *Peren.*
• 125. *Incarnatus.* Curaçoa. } Vahl, *Eclog. Amer.*
• 126. *Ruber.* South America. }
• 127. *Crenatifolius.* Peru. *Ann.*
• 128. *Sagittifolius.* South America. (*Michaux.*)
• 129. *Bonariensis.* Buenos Ayres. (*Cavanilles.*)
• 130. *Villosus.* Cayenne. } Vahl, *Eclog. Amer.*
• 131. *Nummularius.* S. America. }
• 132. *Nodiflorus.* Santa Cruz. }
• 133. *Parviflorus.* St Domingo. (*Encyc. Bot.*)

Class Pentan

* 134. *Ovalifolius*. East Indies. (*Vahl.*)
* 135. *Simplex*. East Indies. (*Lamarck.*)
* 136. *Cynosus*. Pozuzo in Peru. (*Flor. Peruv.*)
* 137. *Sphærostigma*. Mindanao. (*Cavanilles.*)
* 138. *Eriospermus*. St Domingo. (*Lamarck.*)
* 139. *Macrocalyx*. Chili. (*Flor. Peruv.*)
* 140. *Ebracteatus*. Sicily.
* 141. *Trichosanthes*. America. (*Michaux.*)
* 142. *Stans*. Lake Champlain in Canada. (*Michaux.*)
* 143. *Ciliatus*. (Roth. *Catal.*)
* 144. *Evolvuloides*. Tunis. (*Desfont.*)
* 145. *Palustris*. Acapulco. (*Cavanilles.*)
* 146. *Secundus*. Hills of Peru. (*Flor. Peruv.*)
* 147. *Obtusilobus*. Coast of N. Amer. (*Michaux.*)
* 148. *Lasianthus*. Chili. (*Cavanilles.*)
* 149. *Laciniatus*. Near Monte Video. (*Cavanilles.*)
* 150. *Platycarpos*. Mexico. (*Cavanilles.*)

310. LISIANTHUS. *Cor.* tubo ventricoso laciniis recurvatis. *Cal.* carinatus. *Stig.* bilobum. *Caps.* 2-locularis, oblonga.

1. *Longifolius*. Woods of Jamaica. *Shrub.*
2. *Glaucifolius*. *Peren.*
3. *Cærulescens*. Wet meadows of Guiana. *Ann.*
4. *Alatus*. Cayenne and Guiana. *Ann.*
5. *Chelonoides*. Surinam and Cayenne.
6. *Purpurascens*. Fissures of rocks Guiana. *Ann.*
7. *Grandiflorus*. Cayenne and Guiana. *Ann.*
8. *Exsertus*. Blue mountains of Jamaica. *Shrub.*
9. *Glaber*, or *corymbosus* of Persoon. S. Amer.
10. *Frigidus*. Island of Dominica. *Peren.*
11. *Latifolius*. High mts. in Jamaica. *Shrub.*
12. *Umbellatus*. Mts. in the W. of Jamaica. *Shrub.*
13. *Cordifolius*. Jamaica. *Shrub.*
14. *Carinatus*. Madagascar. *Shrub.*
15. *Trinervius*. Madagascar.

* 16. *Exaltatus*. (*Gentiana exaltata* of Linn.)
* 17. *Calygonus*. Cold mts. of Peru. *Shr.*
* 18. *Viscosus*. High parts of Munna. See *Fl.*
* 19. *Revolutus*. Cold mts. of Munna. *Peruv.*
* 20. *Acutangulus*. Mountains in Peru. ii. p. 14.
* 21. *Ovalis*. Groves of Peru.
* 22. *Campanulaceus*. S. Amer. *Ann.* Lamarck,
* 23. *Parvifolius*. South America. *Illust.*

‡ 377. DATURA. *Cor.* infundibulif. plicata. *Cal.* tubulosus, angulatus, deciduus. *Caps.* 4-valvis.

1. *Ferox*. China. *Ann.*
2. *Stramonium*. England and other parts of Europe, America. *Ann.*
3. *Tatula*. *Ann.*
4. *Fastuosa*. Egypt. *Ann.*
5. *Metel*. Asia and Africa, also in the Canary Islands. *Ann.*
6. *Lævis*. Abyssinia. *Ann.*
7. *Arborea*. Peru. *Shrub.*

* 8. *Ceratacaula*. Cuba. *Ann.* (*Ortega.*)

‡ 378. HYOSCYAMUS. *Cor.* infundibulif. obtusa. *Stam.* inclinata. *Caps.* operculata, 2-locularis.

1. *Niger*. Engl. and other parts of Eur. *Bien.*
2. *Reticulatus*. Candia, Syria, Egypt. *Ann.*
3. *Albus*. South of Europe. *Ann.*
4. *Aureus*. Candia, and in the East. *Bien.*
5. *Muticus*. Egypt and Arabia. *Bien.*
6. *Pusillus*. Persia. *Ann.*
7. *Physaloides*. Siberia. *Peren.*
8. *Scopolia*. About the woods of Idria. *Shrub.*

379. NICOTIANA. *Cor.* infundibulif. limbo plicato. *Stam.* inclinata. *Caps.* 2-valvis, 2-locularis.

1. *Tabacum*. America. Brought into Europe *anno* 1560. *Ann.*
2. *Fruticosa*. Cape of G. Hope and China. *Shr.*
3. *Rustica*. America, now in Europe. *Ann.*
4. *Paniculata*. Peru. *Ann.*
5. *Urens*. South America. *Shrub.*
6. *Glutinosa*. Peru. *Ann.*
7. *Pusilla*. Vera Cruz.

* 8. *Undulata*. New South Wales. *Peren.* See Brown's *Prodromus*, p. 447.
* 9. *Undulata*. Cold parts of Tarma. *Ann.* (*Fl. Peruv.*)
* 10. *Crispa*. (Viviani *Elench. Plant.*)
* 11. *Tomentosa*. Fields of Peru. *Shr.* See *Flor.*
* 12. *Angustifolia*. Conception. *Ann.* *Peruv.*

‡ 376. VERBASCUM. *Cor.* rotata, subinæqualis. *Caps.* 2-locularis, 2-valvis.

1. *Thapsus*. Engl. and other parts of Eur. *Bien.*
2. *Thapsoides*. Seldom met with in Eur. *Bien.*
3. *Boerhaavii*. South of Europe. *Ann.*
4. *Hæmorrhoidale*. Madeira. *Bien.*
5. *Phlomoides*. Italy and Germany. *Bien.*
6. *Lychnitis*. Engl. and other parts of Eur. *Per.*
7. *Ferrugineum*. South of Europe. *Peren.*
8. *Nigrum*. Engl. and other parts of Eur. *Per.*
9. *Phœnicium*. East of Europe, Germany, and Carniola. *Bien.*
10. *Blattaria*. Engl. and other parts of Eur. *Bien.*
11. *Gallicum*, or *virgatum*. Fields of England and Dauphiny. *Bien.*
12. *Sinuatum*. Montpellier and Florence. *Bien.*
13. *Pinnatifidum*. Islands of the Archipelago.
14. *Barnadesii*. Spain near Ortaleza.
14. *Osbeckii*. Spain. *Bien.*
16. *Spinosum*. Candia. *Shrub.*
17. *Myconi*. Groves in the Pyrenees. *Peren.*

* 18. *Ovalifolium*. Mount Caucasus. *Peren.*
* 19. *Pulverulentum*. England. *Bien.* (*Smith.*)
* 20. *Parisiense*. Near Paris. (*Thuill.*)
* 22. *Viscidulum*. Near Paris. (*Thuill.*)
* 23. *Claytoni*. Carolina. (*Michaux.*)
* 24. *Monspessulanum*. Near Montpellier. (*Pers.*)
* 25. *Undulatum*. In the East. (*Lamarck.*)
* 26. *Parviflorum*. In the East. (*Lamarck.*)
* 27. *Lyratum*. Spain? (*Lamarck.*)

‡ 394. CHIRONIA. *Cor.* rotata. *Pistillum* declinatum. *Stam.* tubo corollæ insidentia. *Antheræ* demum spirales. *Pericarpium* 2-loculare.

1. *Trinervia*. Ceylon. *Ann.*
2. *Jasminoides*. Cape of Good Hope.
3. *Lychnoides*. Cape of Good Hope.
4. *Nudicaulis*. Cape of Good Hope.
5. *Campanulata*. Canada.
6. *Angularis*. Virginia.
7. *Pulchella*. England and Sweden. *Ann.*
8. *Chilensis*. Chili. *Ann.*
9. *Centaurium*. Britain, France, &c. *Ann.*
10. *Inaperta*. Pastures of Europe. *Ann.*
11. *Maritima*. Spain, Italy, and S. of Fran. *Ann.*
12. *Spicata*. Montpellier and Italy. *Ann.*
13. *Linoides*. Cape of Good Hope. *Shrub.*
14. *Baccifera*. Ethiopia. *Shrub.*
15. *Frutescens*. Ethiopia. *Shrub.*

16. *Tetragona.* Cape of Good Hope. *Shrub.*
* 17. *Decussata.* Cape of Good Hope. *Shrub.*
* 18. *Angustifolia.* Cape of Good Hope. *Shrub.*
* 19. *Uniflora.* Cape of Good Hope. (*Lamarck.*)
* 20. *Melampyrifolia.* Cape of Good Hope. (*Lamarck.*)
* 21. *Paniculata.* Lower Carolina. (*Michaux.*)

322. Porana. *Cor.* campanulata. *Cal.* 5-fidus, in fructu major. *Stylus* semibifidus, longior, persistens. *Stigmata* globosa. *Per.* bivalve.
1. *Volubilis.* East Indies. *Shrub.*

290. Diapensia. *Cor.* hypocraterif. *Cal.* 5-phyllus, imbricatus, foliolis tribus. *Stamina* tubo corollæ imposita. *Caps.* 3-locularis.
1. *Lapponica.* Mountains of Lapland. *Peren.*

320. Phlox. *Cor.* hypocraterif. *Filam.* inæqualia. *Stigma* 3-fidum. *Cal.* prismaticus. *Caps.* 3-locularis, 1-sperma.
1. *Paniculata.* North America. *Peren.*
2. *Undulata.* North America. *Peren.*
3. *Suaveolens.* North America. *Peren.*
4. *Maculata.* Virginia. *Peren.*
5. *Pilosa.* Virginia. *Peren.*
6. *Carolina.* Carolina. *Peren.*
7. *Glaberrima.* Virginia. *Peren.*
8. *Divaricata.* Virginia. *Peren.*
9. *Ovata.* Virginia. *Peren.*
10. *Subulata.* Virginia. *Peren.*
11. *Sibirica.* North of Asia. *Peren.*
12. *Setacea.* Virginia.
* 13. *Pyramidalis.* N. Amer. *Per.* (Smith, *Exot.*)
* 14. *Prostrata.* North America. *Peren.*
* 15. *Stolonifera*, or *reptans* of Michaux. Georgia. *Peren.*
* 16. *Triflora.* Upper Carolina. } See Mich.
* 17. *Latifolia.* Woods of Carolina. } *Fl. Amer.*
* 18. *Aristata.* At the R. Santee in Car. } i. p. 143.
* 19. *Linearis.* Talcahuano in Chili. *Ann.* (*Cavan.*)
* 20. *Biflora.* Chili. *Ann.* (*Flor. Peruv.*)
* 21. *Pinnata.* Monte Video and New Spain. *Shrub.* (*Cavanilles.*)

‡ 326. Polemonium. *Cor.* 5-partita, fundo clauso valvis staminiferis. *Stigma* 3-fidum. *Caps.* 3-locularis, supera.
1. *Cœruleum.* Engl. Europe, and Asia. *Peren.*
2. *Reptans.* Virginia. *Peren.*
3. *Dubium.* Virginia.
4. *Roelloides.* Cape of Good Hope.
5. *Campanuloides.* Cape of Good Hope.

Sp. 4, 5, germine infero a Polemoniis recedunt. Lamarck *Ill.* They ought therefore to be separated from this genus.

324. Cantua, or Periphragmos. (*Fl. Peruv.*) *Cal.* 3-5-fid. *Cor.* infundibulif. *Stigma* 3-fidum. *Caps.* 3-locul. 3-valv. polysperma. *Sem.* alata.
1. *Pyrifolia.* Peru. *Shrub.*
2. *Buxifolia.* Peru. *Shrub.*
3. *Hoitzia.* Mexico. See the new genus Hoitzia. *Shrub.*
4. *Coronopifolia.* Sandy parts of Carol. *Shr.*
* 5. *Uniflora.* Hedges of Peru. }
* 6. *Dependens.* Peru. } See *Fl. Peruv.*
* 7. *Flexuosa.* Peru. } ii. p. 18.
* 8. *Fœtida.* Peru. }
* 9. *Tomentosa.* Peru. (*Cavanilles.*)

325. Ipomœa. *Cor.* infundibulif. *Stigma* capitato-globosum. *Caps.* 3 locularis.
1. *Quamoclit.* India. *Ann.*
2. *Dissecta.* Guinea and N. Holl. (*Brown.*)
3. *Umbellata.* America.
4. *Carolina.* Carolina.
5. *Coccinea.* St Domingo. *Ann.*
6. *Lacunosa.* Virginia and Carolina. *Ann.*
7. *Leucantha.* Tropical America. *Ann.*
8. *Solanifolia.* America.
9. *Tuberosa.* Jamaica. *Peren.*
10. *Digitata.* America.
11. *Bona nox.* Sandy parts of India, climbing on trees. *Ann.*
12. *Campanulata.* India.
13. *Violacea.* South America.
14. *Verticillata.* Arabia Felix.
15. *Carnea.* America. *Shrub.*
16. *Repanda.* America. *Ann.*
17. *Filiformis.* Woods of Martinique. *Shrub.*
18. *Hastata.* Java.
19. *Glaucifolia.* Mexico.
20. *Simplex.* Cape of Good Hope.
21. *Hederacea.* Tropical Amer. and N. Holl. *Ann.*
22. *Triloba.* America. *Ann.*
23. *Sunguinea.* Island of Santa Cruz. *Ann.*
24. *Hederifolia.* America. *Ann.*
25. *Parviflora.* Island of Santa Cruz. *Ann.*
26. *Hepaticifolia.* Ceylon.
27. *Tamnifolia.* Carolina. *Ann.*
28. *Pes-tigridis.* India. *Ann.*
* 29. *Alata.*
* 30. *Longiflora.*
* 31. *Gracilis.*
* 32. *Plebeia.*
* 33. *Eriocarpa.*
* 34. *Luteola.*
* 35. *Velutina.*
* 36. *Abrupta.*
* 37. *Congesta.*
* 38. *Urceolata.*
* 39. *Graminea.*
* 40. *Denticulata.*
* 41. *Carnosa.*
* 42. *Incisa.*
* 43. *Cinerascens.*
* 44. *Quinata.*
* 45. *Hirsuta.*
* 46. *Diversifolia.*
* 47. *Biflora.*
* 48. *Eresta.*
* 49. *Pannosa.*
* 50. *Heterophylla.*
* 51. *Filiformis.* Martinique.
* 52. *Tricolor.*
* 53. *Glandulifera.*
* 54. *Acutangula.*
* 55. *Cuspidata.*
* 56. *Villosa.*
* 57. *Papirin.*
* 58. *Macrorhiza.* Georgia and Florida.
* 59. *Crassifolia.* Guyaaquil.
* 60. *Stans.*
* 61. *Barbata.*
* 62. *Pentaphylla.*
* 63. *Muricata.*
* 64. *Heterophylla.* New Spain.
* 65. *Ternifolia.*
* 66. *Sinuata.*

Sp. 29—50 from New Holland. Sp. 53—57 from Peru, see *Flor. Peruv.* Under this genus Mr Brown ranks Sp. 41, 56, 75, 113, 114, of Convolvulus. Sp. 1, 5, 16, 17, 23, of *Ipomœa* "a reliquis diversæ sunt," says Mr Brown, "corolla angusto-infundibuliformi, staminibus adscendentibus limbum subæquantibus." *Prodr.* p. 484.

375. Brossæa. *Cor.* truncata. *Cal.* carnosus. *Caps.* 5-locularis, polysperma.
1. *Coccinea.* Warm parts of America. *Shrub.*

‡ 312. Azalea. *Cor.* campanulata. *Stamina* receptaculo inserta. *Caps.* 5-locularis.
1. *Pontica.* At the Black Sea and Amer. *Shr.*

2. *Indica.* India. *Shrub.*
3. *Nudiflora.* Dry parts of Virginia. *Shrub.*
4. *Viscosa.* Virginia. *Shrub.*
5. *Lapponica.* Lapland. *Shrub.*
6. *Procumbens.* Brit. and other pts. of Eur. *Shr.*
* 7. *Rosmarinifolia.* Japan. (*Lamarck.*)
* 8. *Periclymena.* New Jersey. } See Michaux
* 9. *Canescens.* Lower Carolina } *Flor. Amer.*

315. Epacris. *Cal.* 5-partit. *Cor.* infundibulif. villosa. *Squamæ* nectariferæ germini adnatæ. *Caps.* 5-locul. 5-valv. dissepimentis e medio valvularum. *Semina* acerosa plurima.

1. *Grandiflora.*
2. *Longifolia.*
3. *Rosmarinifolia.*
4. *Pumila.*
* 5. *Longiflora.*
* 6. *Pulchella.*
* 7. *Pungens.*
* 8. *Spuria.*
* 9. *Villosa.*

All from New Holland and New Zealand, and all shrubby, except Sp. 4, which is *Peren.* See Cavanilles, *Icones*, iv. p. 25.

481. Nerium. Contorta. *Folliculi* 2. erecti. *Sem.* plumosa. *Cor.* tubus terminatus corona lacera.

1. *Oleander.* South of Europe, and in the East Indies, in damp places. *Shrub.*
2. *Odorum.* East Indies. *Shrub.*
3. *Salicinum.* Arabia Felix. *Shrub.*
4. *Obesum.* Arabia Felix. *Shrub.*
5. *Zeylanicum.* India. See new genus Wrightia. *Shrub.*
6. *Divaricatum.* India. *Bien.*
7. *Antidysentericum.* Malabar, Ceylon, and Russia. See the new genus Wrightia. *Shrub.*
8. *Coronarium.* East Indies. *Shrub.*

The character of this genus, as reformed by Mr Brown, is " Contorta. *Folliculi* 2, erecti. *Sem.* extremitate superiori comora. *Cor.* hypocraterif. faux coronata squamis 5, divisis." See Brown, *Wern. Trans.* vol. i. p. 60. and *Hort. Kew.* ii. p. 67.

Sp. 4. seems to be sui generis; Sp. 8. is probably a *Tabernæmonta*; and Sp. 6. appears to be the same plant.

482. Echites. Contorta. *Folliculi* 2. longi, recti. *Sem.* coma instructa. *Cor.* infundibulif. fauci nuda.

1. *Biflora.* Caribbee Islands. *Shrub.*
2. *Quinquangularis.* South America. *Shrub.*
3. *Annularis.* Surinam.
4. *Tomentosa.* Cayenne. *Shrub.*
5. *Suberecta.* Jamaica. *Shrub.*
6. *Domingensis.* Coast of Jam. and Hispan. *Shr.*
7. *Agglutinata.* Mountains of St Domingo. *Per.*
8. *Asperuginis.* Jamaica and Hispaniola. *Shrub.*
9. *Torulosa.* Jamaica. *Shrub.*
10. *Umbellata.* Jamaica.
11. *Circinalis.* Mountains of Hispaniola. *Shrub.*
12. *Floribunda.* Mountains of Jamaica. *Shrub.*
13. *Trifida.* America. *Shrub.*
14. *Repens.* Rocky parts of St Domingo. *Shr.*
15. *Corymbosa.* Woods of St Domingo. *Shrub.*
16. *Costata.* Society Islands. *Shrub.*
17. *Spicata.* Woods in Carthagena. *Shrub.*
18. *Siphilitica.* Surinam. *Shrub.*
19. *Caudata.* India. *Shrub.*
20. *Scholaris.* India. *Shrub.*
21. *Succulenta.* Cape of Good Hope. *Shrub.*
22. *Bispinosa.* Cape of Good Hope. *Shrub.*
* 23. *Acuminata.*
* 24. *Laxa.*
* 25. *Hirsuta.*
* 26. *Subsagittata.*
* 27. *Glandulosa.*
* 28. *Puberula.* Carolina. (*Michaux.*)
* 29. *Truncata.* (*Lamarck.*)
* 30. *Lappulacea.* (*Lamarck.*)

Species 23—27 from Peru. See *Flor. Per.*

The character of this genus, as reformed by Mr Brown, is " Contorta. *Folliculi* 2, longi, recti. *Sem.* extremitate superiori comosa. *Cor.* hypocraterif. faux nuda. *Antheræ* medio cum stigmate cohærentes. See *Wern. Trans.* vol. i. p. 48, 49, and *Hort. Kew.* ii. p. 68. Species 12, 15, 17, are removed to another genus.

483. Plumeria. Contorta. *Folliculi* 2 reflexi. *Semina* membranæ propriæ inserta.

1. *Rubra.* Jamaica and Surinam. *Shrub.*
2. *Alba.* Jamaica. *Shrub.*
3. *Obtusa.* Warm parts of America. *Shrub.*
4. *Pudica.* America. *Shrub.*
* 5. *Acuminata.* East Indies. *Shrub.*
* 6. *Purpurea.* *Shrub.* }
* 7. *Incarnata.* *Shrub.* } Peru. See *Flor. Per.*
* 8. *Carinata.* *Shrub.* }
* 9. *Tricolor.* }

484. Cameraria. Contorta. *Folliculi* 2, horizontales. *Semina* membranæ propriæ inserta.

1. *Latifolia.* Warm parts of America. *Shrub.*
2. *Zeylanica.* Ceylon. *Shrub.*
3. *Lutea.* River Galibia in Guiana. *Shrub.*
4. *Angustifolia.* Warm parts of Amer. *Shrub.*

485. Tabernæmontana. Contorta. *Folliculi* 2 horizontales. *Sem.* pulpæ immersa.

1. *Citrifolia.* America. *Shrub.*
2. *Laurifolia.* Jamaica on the banks of rivers. *Shrub.*
3. *Echinata.* Guiana. *Shrub.*
4. *Grandiflora.* Carthagena. *Shrub.*
5. *Cymosa.* Carthagena. *Shrub.*
6. *Amygdalifolia.* Woods of Carthagena. *Shr.*
7. *Discolor.* Jamaica. *Shrub.*
8. *Persicariæfolia.* Island of Mauritius. *Shrub.*
9. *Elliptica.* Japan. *Peren.*
10. *Alternifolia.* Malabar. *Shrub.*
11. *Amsonia.* Virginia. *Peren.*
12. *Angustifolia.* Carolina and Virginia. *Peren.*
* 13. *Orientalis.*
* 14. *Pubescens.*
* 15. *Ebracteata.*
* 16. *Arenata.*
* 17. *Sananho.*

Species 13—15 from New Holland, see Brown's *Prodromus*, p. 467. Species 16, 17, from Peru, see *Fl. Per.*

‡ 480. Vinca. Contorta. *Folliculi* 2, erecti. *Sem.* nuda.

1. *Minor.* Engl. Germ. France, &c. *Shrub.*
2. *Major.* England, south of France, Spain, Switzerland, &c. *Shrub.*
3. *Lutea.* Carolina. *Shrub.*
4. *Rosea.* Madagascar, Java. *Shrub.*
5. *Parviflora.* Tranquebar. *Ann.*
* 6. *Herbacea.* Near Buda. *Peren.* (*Kitaibel.*)

475. Cerbera. Contorta. *Drupa* monosperma.

1. *Ahovai.* Brazil. *Shrub.*
2. *Ovata.* New Spain. *Shrub.*

3. *Parviflora.* Friendly Islands, and Savage Island in the Pacific Ocean. *Shrub.*
4. *Manghas.* India near water. *Shrub.*
5. *Maculata,* or *Undulata* of Persoon. Island of Bourbon. *Shrub.*
6. *Thevetia.* Cuba and Martinique. *Shrub.*
* 7. *Peruviana.* Peru. (*Fl. Peruv.*)

339. THOUINIA. *Cal.* 5-phyll. *Cor.* 1-petala campanulata infera extus hispida! *Stylus* simplex. *Drupa?*
1. *Spectabilis.* Madagascar. *Shrub.*

This plant is given by Persoon under the genus *Endrachium.* The *Thouinia* of Persoon is totally different from the present genus.

402. TECTONA. *Cor.* 5-fida. *Stigma* dentatum. *Drupa* sicca spongiosa intra calycem inflatum. *Nux* trilocularis.
1. *Grandis.* In the vast woods in the islands of Java and Ceylon; also at Malabar and Coromandel. A very large tree.

391. ARDISIA. *Cal.* 5-phyllus. *Cor.* hypocraterif. limbo reflexo. *Anth.* magnæ erectæ. *Stigma* simplex. *Drupa* supera monosperma.
1. *Tinifolia.* Dry hills of Jamaica. *Shrub.*
2. *Coriacea.* Antilles. *Shrub.*
3. *Serrulata.* Hispaniola. *Shrub.*
4. *Acuminata.* Fields of Guiana. *Shrub.*
5. *Humilis.* Island of Hainam, Siam, Malacca, and Ceylon. *Shrub.*
6. *Solanacia.* Mountains East Indies. *Shrub.*
7. *Lateriflora.* West Indies. *Shrub.*
8. *Excelsa.* Madeira. *Shrub.*
9. *Parasitiea.* Dominica. *Shrub.*
* 10. *Crenulata.* Antilles.
* 11. *Pyramidalis.* Santa Cruz.
* 12. *Serrata.* (*Cavanilles.*)

This genus is the same as the *Anguillaria* of Gærtner and the *Badula* of Jussieu.

401. BUMELIA. *Cor.* 5-fida. *Nect.* 5-phyll. *Drupa* monosperma.
1. *Nigra.* Woody mountainous places of Jamaica. *Shrub.*
2. *Pallida.* In the fields of Jamaica.
3. *Tenax.* Dry parts of Carolina. *Shrub.*
4. *Retusa.* Mountains in the western parts of Jamaica. *Shrub.*
5. *Fœtidissima.* Woody mountains of St Domingo. *Shrub.*
6. *Salicifolia.* Dry hills of Jamaica, Santa Cruz, and in the Bahama islands. *Shrub.*
7. *Manglillo.* Wet parts of Peru about Lima. *Shrub.*
8. *Montana.* High mountains in the south of Jamaica. *Shrub.*
9. *Nervosa.* Cayenne. *Shrub.*
10. *Pentagona.* Mt. St Joseph in Dominica. *Shrub.*
11. *Rotundifolia.* Mts. of Jamaica. *Shrub.*
12. *Cuneata.* Fruitful mountains of Jamaica, and in other parts of the West Indies. *Shrub.*
* 13. *Lycioides.* Canada and Carolina. } Michaux,
* 14. *Reclinata.* Rocks of Georgia. } *Fl. Amer.*
* 15. *Lanuginosa.* Wet parts of Geor. } i. p. 122.

474. GYNOPOGON. Contorta. *Stigma* bilabiatum apice villosum. *Drupa* nuce semibiloculari.
1. *Stellatum.* Soc. and Friendly Isles. *Shrub.*
2. *Alyxia.* Norfolk Island. *Shrub.*
3. *Scandens.* Society Islands. *Shrub.*

399. LAUGERIA. *Cor.* 5-fida. *Drupa* nuce 5-loculari.
1. *Odorata.* America. *Shrub.*
2. *Lucida.* Warm parts of Jamaica, Islands of St Lucia and Santa Cruz. *Shrub.*
3. *Coriacea.* Montserrat, tops of mts. *Shrub.*
4. *Resinosa.* Island of Montserrat. *Shrub.*
5. *Tomentosa.* West of Jamaica. *Shrub.*

Persoon makes this a subgenus to *Guettarda.* *Synopsis*, i. p. 200.

398. VARRONIA. *Cor.* 5-fida. *Drupa* nuce 4-loculari.
1. *Lineata.* America.
2. *Bullata.* Dry parts of Jamaica.
3. *Mirabiloides.* Stony parts of Hispaniola.
4. *Martinicensis.* Martinique.
5. *Globosa.* America.
6. *Curassavica.* Dry pastures of Jamaica.
7. *Angustifolia.* Santa Cruz.
8. *Alba.* America.
9. *Monosperma.* Caraccas.
* 10. *Crenata.* * 12. *Obliqua.*
* 11. *Dichotoma.* * 13. *Cylindristachya.*
* 14. *Ferruginea.* America. (*Lamarck.*)

All shrubby. Sp. 10—13 from Peru. *Fl. Peruv.*

396. CORDIA. *Cor.* infundibuliformis. *Stylus* dichotomus. *Drupa* nuce 2-loculari.
1. *Myxa.* Egypt and Malabar. *Shrub.*
2. *Obliqua.* East Indies. *Shrub.*
3. *Monoica.* Woods of India. *Shrub.*
4. *Spinescens.* East Indies. *Shrub.*
5. *Sebestena.* India. *Shrub.*
6. *Aspera.* Island of Tongataboo. *Shrub.*
7. *Dichotoma.* N. Caledonia and N. Holl. *Shr.*
8. *Geraschanthus.* Woods of Jamaica. *Shrub.*
9. *Flavescens.* Sides of meadows, and woods of Guiana and Cayenne. *Shrub.*
10. *Toqueve.* Woods of Guiana. *Shrub.*
11. *Macrophylla.* Jamaica. *Shrub.*
12. *Micranthus.* Woody mts. of Jamaica. *Shr.*
13. *Elliptica.* Jamaica and Dominica. *Shrub.*
14. *Collococca.* Jamaica. *Shrub.*
15. *Hirsuta.* Woods of Cayenne and Guiana. *Shr.*
16. *Tetrandra.* At rivers and coasts of Guiana and Cayenne.
17. *Patagonula.* Patagonia.
18. *Tetraphylla.* Sandy coasts of Guiana.
* 19. *Orientalis.* New Holland. See the new genus CERDANA, and Brown's *Prodr.* p. 498.

386. IGNATIA. *Cal.* 5-dentatus. *Cor.* longissima infundibuliformis. *Drupa* unilocul. polyp. *Sem.* irregularia angulata.
1. *Amara.* India. *Shrub.*

397. EHRETIA. *Drupa,* 2-locularis. *Nuces* solitariæ, 2-loculares. *Stigma* emarginatum.
1. *Tinifolia.* Jamaica. *Shrub.*
2. *Aspera.* Dry rocky parts of India. *Shrub.*
3. *Lævis.* India in Circar mountains. *Shrub.*
4. *Internodis.* Island of Mauritius. *Shrub.*
5. *Spinosa.* America. *Shrub.*
6. *Beurreria.* Jamaica. *Shrub.*
7. *Virgata.* Deserts of Hispaniola. *Shrub.*
8. *Exsucca.* South America. *Shrub.*
9. *Buxifolia.* East Indies. *Shrub.*
* 10. *Acuminata.* N. S. Wales. Brown's *Prodr.* p. 497.

*11. *Saligna.* N. Holland. } Brown's *Prodr.*
*12. *Membranifolia.* N. Holl. } p. 497.
*13. *Microphylla.* India. *Shrub.* (*Lamarck.*)

Mr Brown thinks, that Sp. 1. and another species from the East Indies, are the only genuine ones of this genus. See *Prodromus*, p. 497.

16. STYPHELIA. *Cal.* imbricatus. *Cor.* tubulosa. *Stam.* fauci inserta. *Drupa* 5-locularis. *Semina* bina.

1. *Tubiflora.*
2. *Ericoides.*
3. *Strigosa.*
4. *Scoparia.*
5. *Daphnoides.*
6. *Lanceolata.*
7. *Elliptica.*
8. *Juniperina.*

*9. *Triflora.*
*10. *Longifolia.*
*11. *Læta.*
*12. *Adscendens.*
*13. *Latifolia.*
*14. *Viridiflora.*
*15. *Gnidium.*

All shrubby, and from New Holland, except Sp. 15. Cavanilles adds two other Sp. *Procumbens* and *Humifusa*, but they do not seem to be different from those enumerated. This genus differs from EPACRIS only in the fruit.

78. WILLUGHBEIA. Contorta. *Cor.* Hypocrateriformis. *Stigma* capitatum. *Pepo* uni-seu-bilocularis.

1. *Acida.* Woods of Cayenne and Guiana. *Shr.*
2. *Scandens.* At the R. Galibia in Guiana. *Shr.*

473. CARISSA. Contorta. *Baccæ* 2, polysperma.

1. *Carandas.* India. *Shrub.*
2. *Spinarum.* East Indies. *Shrub.*
3. *Edulis.* Arabia Felix. *Shrub.*
4. *Inermis.* East Indies. *Shrub.*
5. *Mitis.* East Indies. *Shrub.*

*6. *Ovata.* *7. *Scabra.* *8. *Lanceolata.*
*9. *Salicina*, a var. of Sp. 2?

Sp. 6—8 from N. Holl. see Brown's *Prodr.* p. 168.

JACQUINA. *Cor.* 10-fida. *Stamina* receptaculo inserta. *Bacca* 1-sperma.

1. *Arborea.* Montserrat. *Shrub.*
2. *Armillaris.* America. *Shrub.*
3. *Venosa.* West Indies. *Shrub.*
4. *Ruscifolia.* South America. *Shrub.*
5. *Linearis.* America. *Shrub.*

*6. *Aurantiaca.* Sandwich Isles. *Shrub.*
*7? *Macrocarpa.* Near Acapulco. (*Cavanilles.*)

MYRSINE. *Cor.* semiquinquefida, connivens. Germen corollam replens. *Drupa* 1-sperma nuce uniloculari.

1. *Africana.* Ethiopia. *Shrub.*
2. *Retusa.* The Azores Isles. *Shrub.*

See MYRSINE among the New Genera in the Class DIOECIA, where this genus will be found as reformed by Mr Brown. Sp. 1, 2, are scarcely distinct. *Prodromus*, p. 533.

BLADHIA. *Cal.* 5-partit. *Cor.* rotata quinquefida. *Bacca* 1-sperma. *Semen* arillatum!

1. *Japonica.*
2. *Glabra.*
3. *Villosa.*
4. *Crispa.*

All shrubby, and from Japan.

PÆDERIA. Contorta. *Baeca* vacua, fragilis, [illegible] *Stylus* 2-fidus.

1. *Fœtida.* India. *Peren.*
2. *Fragrans.* Mauritius. *Peren.*

RAUWOLFIA. Contorta. *Bacca* succulenta disperma.

1. *Nitida.* South America. *Shrub.*
2. *Glabra.* New Spain. *Shrub.*
3. *Canescens.* Jamaica. *Shrub.*
4. *Tomentosa.* Rocks of Carthagena. *Shrub.*

*5. *Flexuosa.* Peru. } See *Flor. Peruv.* ii.
*6. *Macrophylla.* Peru. } p. 26.

415. ARDUINA. *Cor.* 1-petala. *Stigma* 2-fidum. *Bacca* 2-locularis. *Sem.* solitaria.

1. *Bispinosa.* Cape of Good Hope. *Shrub.*

This plant is given by Persoon under the genus CARISSA.

387. CESTRUM. *Cor.* infundibuliformis. *Stamina* denticulo in medio. *Bacca* 1-locularis, polysperma.

1. *Laurifolium.* America. *Shrub.*
2. *Nocturnum.* Jamaica and Chili. *Shrub.*
3. *Parqui.* Wet parts of Chili. *Shrub.*
4. *Auriculatum.* Wet parts of Lima. *Shrub.*
5. *Scandens.* Near St Martha. *Shrub.*
6. *Vespertinum.* America. *Shrub.*
7. *Diurnum.* Chili and the Havannah. *Shrub.*
8. *Venenatum.* Cape of Good Hope. *Shrub.*
9. *Tomentosum.* South America. *Shrub.*
10. *Hirtum.* Woods of Jamaica. *Shrub.*
11. *Latifolium.* Island of Trinidad. *Shrub.*

*12. *Confertum.* *15. *Longiflorum.*
*13. *Conglomeratum.* *16. *Strigilatum.*
*14. *Racemosum.*
*17. *Macrophyllum.* Porto Rico. (*Ventenat.*)

Sp. 12—16. from Peru, see *Flor. Peruv.*

311. FAGRÆA. *Cor.* infundibuliformis tubo longissimo. *Stigma* peltatum. *Bacca* 2-locularis carnosa. *Semina* globosa.

1. *Zeylanica.* Ceylon. *Shrub.*

288. TOURNEFORTIA. *Bacca* 2-locularis, disperma, supera, apice duobus poris perforata.

1. *Serrata.* Warm parts of America. *Shrub.*
2. *Hirsutissima.* Warm parts of Amer. *Shrub.*
3. *Volubilis.* On trees Jamaica, Mexico. *Shrub.*
4. *Syringæfolia.* Cayenne. *Shrub.*
5. *Fœtidissima.* Mexico and Jamaica. *Shrub.*
6. *Humilis.* Warm parts of America. *Shrub.*
7. *Bicolor.* Jamaica. *Shrub.*
8. *Cymosa*, or *macrophylla* of Persoon. Jamaica. *Shrub.*
9. *Argentia.* Ceylon and New Holland. *Shrub.*
10. *Sericea.* Island of Montserrat. *Shrub.*
11. *Suffruticosa.* Jamaica. *Shrub.*

*12. *Orientalis.* New Holland. (*Brown.*)
*13. *Laurifolia.* Porto Rico and St Thos. (*Vent.*)
*14. *Bifida.* Mauritius. *Shrub.* (*Lamarck.*)
*15. *Polystachia.* *19. *Virgata.*
*16. *Undulata.* *20. *Mutabilis.* (*Ventenat.*)
*17. *Longifolia.*
*18. *Angustifolia.* *21. *Scandens.*

Sp. 15 to 21 from Peru, see *Flor. Peruv.* Mr Brown comprehends in this genus Sp. 5, 7, 8, 9, 12, along with *Heliotropium gnaphalodes*, and all the species of the genus MESSERSCHMIDIA; and he is of opinion that Sp. 2, 3, 21, should form a distinct genus. He refers Sp. 6. to *Heliotropium*. See *Prodromus*, p. 496.

385. STRYCHNOS. *Cor.* 5-fida. *Bacca* 1-locularis, cortice lignoso.

1. *Nux vomica.* India. *Shrub.*
2. *Colubrina.* India. *Shrub.*

3. *Potatorum.* Mountains at Madras. *Shrub.*
* 4. *Lucida.* N. Holl. (Brown's *Prodr.* p. 469.)
* 5. *Brachiata.* Groves of Peru. (*Fl. Peruv.*)
384. CAPSICUM. *Cor.* rotata. *Bacca* exsucca.
1. *Annuum.* South America. *Ann.*
2. *Baccatum.* Indies.
3. *Sinense.* China.
4. *Grossum.* India.
5. *Frutescens.* Indies.
6. *Cerasiforme.*
All shrubby.
‡ 383. SOLANUM. *Cor.* rotata. *Antheræ* subcoalitæ, apice poro gemino dehiscentes. *Bacca* 2-locularis.
1. *Laurifolium.* Great woods of South America. *Shrub.*
2. *Verbascifolium.* America, New Holland. *Shrub.*
3. *Auriculatum.* Islands of Madagascar, Mauritius, and Bourbon. *Shrub.*
4. *Pubescens.* East Indies. *Shrub.*
5. *Bombense.* In the island of Tierra Bomba near Carthagena. *Shrub.*
6. *Pseudo-Capsicum.* Madeira. *Shrub.*
7. *Microcarpum.* Egypt. *Shrub.*
8. *Terminale.* Arabia Felix. *Shrub.*
9. *Pauciflorum.* Martinique.
10. *Diphyllum.* America. *Shrub.*
11. *Fugax.* About the Caraccas. *Shrub.*
12. *Geminatum.* Cayenne. *Shrub.*
13. *Retrofractum.* South America. *Shrub.*
14. *Stellatum.* *Shrub.*
15. *Dulcamara.* Engl. and other parts of Eur. *Shr.*
16. *Triquetrum.* New Spain. *Shrub.*
17. *Scandens.* Surinam.
18. *Lyratum.* Near Nagasaki in Japan.
19. *Tegore.* Banks of the river Sinemari Guiana. *Shrub.*
20. *Quercifolium.* Peru. *Peren.*
21. *Laciniatum.* New Holland, New Zealand, and Van Diemen's Island. *Shrub.*
22. *Radicans.* Peru. *Peren.*
23. *Havanense.* Shady woods on the coasts of Martinique and Jamaica. *Shrub.*
24. *Triste.* Martinique. *Shrub.*
25. *Racemosum.* Martinique and Surinam. *Shrub.*
26. *Corymbosum.* Peru. *Peren.*
27. *Quadrangulare.* Cape of Good Hope. *Shrub.*
28. *Repandum.* Society Islands in the South Sea.
29. *Bonariense.* Fields at Buenos Ayres. *Shrub.*
30. *Macrocarpon.*
31. *Tuberosum.* Peru. *Peren.*
32. *Pimpinellifolium.* Peru. *Shrub.*
33. *Lycopersicum.* Warm parts of Amer. *Ann.*
34. *Pseudo-Lycopersicum.* *Ann.*
35. *Peruvianum.* Peru. *Peren.*
36. *Montanum.* Peru. *Peren.*
37. *Rubrum.*
38. *Nodiflorum.* Island of Mauritius. *Shrub.*
39. *Nigrum.* England and other parts of Europe, India, Guinea, Virginia, Egypt, New Holland, and Van Diemen's Island. *Ann.*
40. *Æthiopicum.* Ethiopia and China. *Ann.*
41. *Melongena.* Asia, Africa, America. *Ann.*
42. *Subinerme.* West Indies. *Shrub.*
43. *Longiflorum.* Cayenne. *Shrub.*
44. *Muricatum.* Peru. *Shrub.*
45. *Insanum.* East and West Indies. *Ann.*
46. *Torvum.* Jamaica, Hispaniola, and Bermuda Isles. *Shrub.*
47. *Volubile.* Woods of Hispaniola. *Shrub.*
48. *Ferox.* Malabar.
49. *Campechiense.* America. *Shrub.*
50. *Fuscatum.* America. *Ann.*
51. *Mammosum.* Virginia and Barbadoes. *Ann.*
52. *Hirtum.* Island of Trinidad. *Ann.*
53. *Paniculatum.* Brasil.
54. *Aculeatissimum.* America. *Shrub.*
55. *Virginianum.* America. *Ann.*
56. *Jacquini.* East Indies. *Ann.*
57. *Xantocarpum.* Ethiopia. *Ann.*
58. *Coagulans.* Arabia Felix. *Shrub.*
59. *Jamaicense.* Jamaica and Hispaniola. *Shrub.*
60. *Indicum.* India. *Shrub.*
61. *Carolinense.* Carolina.
62. *Sinuatum.* *Shrub.*
63. *Sodomeum.* Africa and New South Wales. *Shrub.*
64. *Capense.* Cape of Good Hope. *Shrub.*
65. *Marginatum.* Abyssinia. *Shrub.*
66. *Stramonifolium.* West Indies. *Shrub.*
67. *Vespertilio.* Canary Islands. *Shrub.*
68. *Sanctum.* Palestine. *Shrub.*
69. *Hybridum.* Guinea. *Shrub.*
70. *Tomentosum.* Ethiopia. *Shrub.*
71. *Polygamum.* Santa Cruz. *Shrub.*
72. *Bahamense.* America and Providence Island.
73. *Obscurum.* Cayenne. *Shrub.*
74. *Giganteum.* Cape of Good Hope. *Shrub.*
75. *Flexuosum.* Cayenne. *Shrub.*
76. *Lanceæfolium.* South America. *Shrub.*
77. *Lanceolatum.* Mexico. *Shrub.*
78. *Eleagnifolium.* Warm parts of Amer. *Shr.*
79. *Polyacanthos.* Island of Dominica. *Shrub.*
80. *Igneum.* America. *Shrub.*
81. *Milleri.* Cape of Good Hope. *Shrub.*
82. *Trilobatum.* Jamaica and East Indies. *Shrub.*
83. *Lycioides.* Peru? *Shrub.*
* 84. *Pyracanthos.* Madagascar. *Shrub.*
* 85. *Betaceum.* (*Cavanilles* and *Andr. Rep.* 511.)
* 86. *Tetrandrum.*
* 87. *Viride.*
* 88. *Biflorum.*
* 89. *Discolor.*
* 90. *Stelligerum.*
* 91. *Violaceum.*
* 92. *Furfuraceum.*
* 93. *Parvifolium.*
* 94. *Ellipticum.*
* 95. *Armatum.*
* 96. *Hystrix.*
* 97. *Cynereum.*
* 98. *Pungetium.*
* 99. *Campanulatum.*
* 100. *Echinatum.*
* 101. *Riparium.*
* 102. *Nutans.*
* 103. *Grandiflorum.*
* 104. *Viridiflorum.*
* 105. *Sessile.*
* 106. *Glandulosum.*
* 107. *Obliquum.*
* 108. *Oblongum.*
* 109. *Biformifolium.*
* 110. *Lineatum.*
* 111. *Acuminatum.*
* 112. *Filiforme.*
* 113. *Fœtidum.*
* 114. *Urceolatum.*
* 115. *Pulverulentum.*
* 116. *Nitidum.*
* 117. *Incurvum.*
* 118. *Patulum.*
* 119. *Anceps.*
* 120. *Gnaphaloides.*
* 121. *Acutifolium.*
* 122. *Sericeum.*
* 123. *Crispum.*
* 124. *Angulatum.*
* 125. *Runcinatum.*
* 126. *Pinnatifidum.*
* 127. *Multifidum.*
* 128. *Mite.*
* 129. *Diffusum.*

*130. *Pendulum.*
*131. *Conicum.*
*132. *Ternatum.*
*133. *Hispidum.*
*134. *Incanum.*
*135. *Scabrum.*
*136. *Incarceratum.*
*137. *Asperum.*
*138. *Virgatum.* Canary Isles.
*139. *Lentum.* Mexico.
*140. *Leprosum.* (*Ortega.*)
*141. *Ficifolium.* Cuba.
*142. *Chenopodioides.*
*143. *Phyllanthum.* Lima. *Ann.*
*144. *Pygmæum.* Buenos Ayres. *Ann.*
*145. *Reclinatum.*
*146. *Pinnatum.* Chili. *Ann.*
*147. *Crinitum.* Cayenne. *Shrub.*
*148. *Undatum.* Mauritius.
*149. *Heterophyllum.* Guiana.
*150. *Ciliatum.*
*151. *Anguivi.* Madagascar.
*152. *Toxicarium.* Guiana.
*153. *Tectum.* Mexico.
*154. *Sisymbrifolium.* Buenos Ayres.
*155. *Cornutum.* Mexico.
*156. *Rigidum.* *Shrub.*

Species 86—100 from New Holland, and all shrubby; see Brown's *Prodr.* pp. 444—447. Species 101—137 from Peru, see *Flor. Peruv.* ii. p. 36. For an account of the other new species, see Lamarck *Illustr.* and *Encyc.*, Cavanilles *Icones*, and Persoon's *Synopsis.*

382. PHYSALIS. *Cor.* rotata. *Stam.* conniventia. *Bacca* intra calycem inflatum, bilocularis.

1. *Somnifera.* Mexico, Candia, Spain. *Peren.*
2. *Aristata.* Canary Islands. *Shrub.*
3. *Flexuosa.* India. *Shrub.*
4. *Arborescens.* Campechy. *Shrub.*
5. *Curassavica.* Curaçao. *Shrub.*
6. *Tomentosa.* Cape of Good Hope. *Shrub.*
7. *Viscosa.* Virginia and Buenos Ayres. *Peren.*
8. *Pennsylvanica.* Virginia. *Peren.*
9. *Alkekengi.* Italy, Germany, Japan in ditches. *Peren.*
10. *Peruviana.* Lima. *Peren.* and *Shrub.*
11. *Angulata.* East and West Indies. *Ann.*
12. *Pubescens.* East and West Indies, Virginia, and New South Wales. *Ann.*
13. *Barbadensis.* Barbadoes. *Ann.*
14. *Chenopodifolia.* *Ann.*
15. *Minima.* Dry parts of India. *Ann.*
16. *Pruinosa.* America. *Ann.*
17. *Prostrata.* Peru. *Ann.*
*18. *Parviflora.* New Holland. (*Brown*, p. 447.)
*19. *Obscura.* Carolina.
*20. *Lanceolata.* Carolina. *Per.*
} See Michaux, *Flor. Amer.*
*21. *Nodosa.* America. (*Lamarck.*)

380. JABOROSA. *Cor.* tubulosa. *Cal.* 5-fidus brevis. *Stam.* fauci inserta. *Stigma* capitatum. *Bacca* 2 3-locul.?

1. *Integrifolia.* Buenos Ayres. *Peren.*
2. *Runcinata.* Buenos Ayres.

381. ATROPA. *Cor.* campanulata. *Stam.* distantia. *Bacca*, globosa 2-locularis.

1. *Mandragora.* Spain, Switzerland, Italy, Siberia, Candia, and the Cyclades. *Peren.*
2. *Belladonna.* England, Austria, Germany, and Italy. *Peren.*
3. *Physaloides.* Peru. *Ann.*
4. *Procumbens.* Mexico. *Ann.*
5. *Solanacea.* Cape of Good Hope. *Shrub.*
6. *Arborescens.* Mountains of Jamaica. *Shrub.*
7. *Frutescens.* Spain. *Shrub.*
*8. *Umbellata.*
*9. *Biflora.*
*10. *Bicolor.*
*11. *Aspera.*
*12. *Punctata.*
*13. *Dentata.*
*14. *Contata.* *Ann.*
*15. *Biflora.* *Peren.*
*16. *Umbellata.* Roth. *Cat.* ii. p. 24.

Species 8—15 from Peru. See *Flor. Peruv.* Persoon ranks species 5, 6, 7, 12, 13, 14, 15. under the subgenus SARACHA, *Cor.* rotato-campanulatæ. *Bacca* (per abortum) 1-locul. *Recept.* carnosum.

304. ELLISIA. *Cor.* infundibuliformis, angusta. *Bacca* sicca, 2-locularis, 2-valvis. *Sem.* 2 punctata: altero supra alterum.

1. *Nyctelea.* Virginia. *Ann.*

388. LYCIUM. *Cor.* tubulosa, fauce clausa *Filamentorum* barba. *Bacca* 2-locularis, polysperma.

1. *Afrum.* North of Africa and Valentia. *Shrub.*
2. *Rigidum*, or *carnosum.* C. of G. Hope. *Shr.*
3. *Ruthenicum.* Mountains of Siberia near the Wolga, in Turcomania and Hyrcania, and at the Caspian Sea. *Shrub.*
4. *Tetrandrum.* Cape of Good Hope. *Shrub.*
5. *Barbarum.* Asia, Africa, and Europe. *Shr.*
6. *Cinereum.*
7. *Europæum.*
8. *Horridum.*
9. *Barbatum.*
10. *Boerhaaviæfolium.* Peru. *Shrub.*
11. *Capsulare.* Mexico. *Shrub.*
*12. *Microphyllum.* India and East of Africa.
*13. *Lanceolatum.* Naples and Greece.
*14. *Chinense.* China.
*15. *Ovatum*, β. *barbarum* of Willd.
} Duhamel, N. Edit. p. 107.
*16. *Obovatum.* Hedges at Tarma.
*17. *Salsum.*
*18. *Spathulatum.* Near Huanuco.
*19. *Umbellatum.* Near Canton.
*20. *Aggregatum.* Near Lima.
} See *Flor. Peruv.* ii. p. 46. t. 183.
*21. *Fuchsioides.* Cold parts of Mexico. *Shrub.* (Humboldt, *Plant. Equinoct.*)

Species 6—9 from the Cape, and shrubby.

Persoon is of opinion, that species 18—20 have a greater affinity with *Atropa arborescens* than with *Lycium*, and he thinks that, along with species 11, they should form a new genus. *Synopsis*, i. p. 232.

390. CRYPTOSTOMUM. *Cor.* infundibulif. calyci inserta. *Nectar.* monophyllum, corollam claudens. *Bacca* exsucca 3-locul. loculis monospermis.

1. *Laurifolium.* Cayenne and Guiana. *Shrub.*

416. CAMAX. *Cal.* 5-partit. *Cor.* rotata. *Stigma* 3 seu 4-fidum. *Bacca* 4-locul. polysperma.

1. *Fraxinea.* Woods of Guiana. *Shrub.*

319. TRIGUERA. *Cor.* campanulata, limbo inæquali. *Nectar.* breve germen cingens 5-dentatum. *Filam.* nectario inserta. *Bacca* 4-locul. loculis 2-spermis.

1. *Ambrosiaca.*
2. *Inodora.*

Both from Andalusia, and *Ann.*

341. SOLANDRA. *Cal.* rumpens. *Cor.* clavato-infundibulif. maxima. *Bacca* 4-locul. polysperma.

1. *Grandiflora* Fissures of rocks in Jamaica. *Shrub.*

369. MENAIS. *Cor.* hypocrateriformis. *Cal.* 3-phyllus. *Bacca* 4-locularis. *Sem.* solitaria.
1. *Topiaria.* South America. *Shrub.*

449. LEEA. *Cor.* 1-petala. *Nect.* 1-phyll. tubo corollæ impositum 5-fidum erectum. *Bacca* 5-sperma infera. (Monoica *Jussieu.*)
1. *Sambucina.* East Indies. *Shrub.*
2. *Æquata.* East Indies. *Shrub.*
3. *Crispa.* Cape of Good Hope. *Peren.*

403. SIDEROXYLON. *Cor.* 5-fida. *Nect.* in plerisque 5-phyllum. *Stigma* simplex. *Bacca*-5-sperma.
1. *Mite.* Africa.
2. *Inerme.* Ethiopia.
3. *Melanophleum.* Cape of Good Hope.
4. *Cymosum.* Cape of G. H. Table Mountain.
5. *Sericeum.* New Holland.
6. *Argenteum.* Cape of Good Hope.
7. *Tomentosum.* East Indies.
8. *Lycioides.* Canada.
9. *Decandrum.* North America.
*10. *Spinosum.* Morocco. This is the *Elæodendrum argan* of Willdenow.
*11. *Nitidan.* St Domingo.
*12. *Multiflorum.* Cape of G. H.
See Lamarck, *Ill.* ii. p. 42.
Species 1—10 shrubby.

400. CHRYSOPHYLLUM. *Cor.* campanulata, 10-fida: laciniis alternis patulis. *Bacca* 10-sperma.
1. *Cainito.* Martinique.
2. *Monopyrenum.* Jamaica and Hispaniola.
3. *Microcarpum.* Beside rivers in Hispaniola.
4. *Argenteum.* Martinique.
5. *Rugosum.* Woody mountains of the western parts of Jamaica.
6. *Pyriforme.* Beside the R. Galibia in Guiana.
7. *Glabrum.* Woods of Martinique.
*8. *Angustifolium.* St Domingo.
*9. *Oliviforme.* Martinique.
Lamarck, *Ill.* ii. p. 44.
All shrubby.

393. BASSOVIA. *Cal.* 5-partitus. *Cor.* rotata. *Bacca* polysperma nodulosa. *Semina* margine membranacea nidulantia.
1. *Sylvatica.* Wet woods of Guiana. *Peren.*

364. BAEOBOTRYS. *Cor.* tubulosa 5-fida. *Cal.* duplex superus; *exterior* 2-phyllus; *inferior* campanulatus, 5-dentatus. *Bacca* 1-locularis polysperma.
1. *Nemoralis.* Island of Tanna. *Shrub.*
2. *Lanceolata.* Mts. of Arabia Felix. *Shrub.*

SECT. VI. *Flowers Monopetalous, Superior.*

‡ 333. SAMOLUS. *Cor.* hypocrateriformis. *Stamina* munita squamulis corollæ. *Caps.* 1-locularis infera.
1. *Valerandi.* Coasts of England, Europe, Asia, America, and New South Wales. *Bien.*
*2. *Littoralis.* New South Wales. *Peren.*
*3. *Junceus.* New Holland.
*4. *Ambiguus.* New Holland.
Brown's *Prodr.* p. 428.
The Sheffieldia *repens* of Linn. and the Sheffieldia *incana* of Labillard. are varieties of species 2. *Prodr.* p. 428.

352. VIRECTA. *Cal.* 5-dentat. dentibus interjectis. *Cor.* infundibulif. *Stigma* bipartitum. *Caps.* 1-locularis polysperma infera.
1. *Biflora.* Moist places of Surinam. *Ann.*

338. BELLONIA. *Cor.* rotata. *Caps.* 1-locularis, infera, polysperma, calyce rostrata.
1. *Aspera.* America. *Shrub.*
2. *Spinosa.* Woods near rivers in Hispaniola. *Shrub.*

337. MACROCNEMUM. *Cor.* campanulata. *Caps.* infera, 2-locularis. *Sem.* imbricata.
1. *Jamaicense.* Banks of rivers, in the South of Jamaica. *Shrub.*
2. *Candidissimum.* Near St Martha. *Shrub.*
3. *Coccineum.* Island of Trinidad. *Shrub.*
*4. *Corymbosum.* Andes.
*5. *Microcarpon.* Chinchao and Cuchero.
*6. *Venosum.* Warm pts. of Peru.
See *Flor. Peruv.* ii. p. 48. t. 189.

351. DENTELLA. *Cal.* 5-partit. superus. *Cor.* infundibulif. laciniis tridentatis. *Caps.* 2-locul. polysperma.
1. *Repens.* East Indies and New Caledonia.

350. CHIMARRHIS. *Cal.* margo integer. *Cor.* infundibulif. *Caps.* infera 2-locul. loculis 1-spermis. *Stigma* 2-partitum.
1. *Cimosa.* Martinique. *Shrub.*

336. RONDELETIA. *Cor.* infundibuliformis. *Caps.* 2-locularis, infera, polysperma, subrotunda, coronata.
1. *Americana.* America. *Shrub.*
2. *Odorata.* America. *Shrub.*
3. *Trifoliata.* America. *Shrub.*
4. *Virgata.* Coasts of Hispaniola. *Shrub.*
5. *Pilosa.* Santa Cruz and Montserrat. *Shrub.*
6. *Thyrsoidea.*
7. *Racemosa.*
8. *Laurifolia.*
9. *Tomentosa.*
10. *Umbellulata.*
11. *Incana.*
12. *Hirsuta.*
13. *Hirta.*
Species 6—13 shrubby, and from Jamaica.
*14. *Lævigata.* West Indies. *Shrub.*
*15. *Buxifolia.* Island of Montserrat. (*Vahl.*)
Species 6—13 require to be re-examined. Persoon thinks that some of them do not belong to this genus.

346. CINCHONA. *Cor.* infundibuliformis. *Caps.* infera, 2-locularis, 2-partibilis, dissepimento parallelo.
1. *Officinalis.* Near Laxa and Ayavaca in Peru. *Shrub.*
2. *Pubescens.* Peru. *Shrub.*
3. *Macrocarpa.* Santa Fe. *Shrub.*
4. *Caribæa.* Caribbees. *Shrub.*
5. *Corymbifera.* Islands of Tongataboo and Eaove, in the Pacific Ocean. *Shrub.*
6. *Lineata.* Dominica. *Shrub.*
7. *Floribunda.* Jamaica, Hispaniola, St Lucia, Dominica, and Guadaloupe, in high woody places, and on the banks of torrents. *Shrub.*
8. *Brachycarpa.* Shady mountains in the west of Jamaica. *Shrub.*
9. *Angustifolia.* Hispaniola banks of rivers.
*10. *Ovalifolia.* Peruvian Andes near Cuenca. *Shr.*
*11. *Scrobiculata.* Peruvian Andes near Jaen de Bracamorros. *Shrub.*

* 12. *Magnifolia.* Peruvian Andes near Jaen de Bracamorros. *Shrub.*
* 13. *Hirsuta.* Highest mountains of the Andes.
* 14. *Purpurea.* Low mountains of the Andes.
* 15. *Ovata.* Low mountains of the Andes towards Pozuzo and Panao.
* 16. *Lanceolata.* Cold mountains of the Andes.
* 17. *Magnifolia.* Warmest groves of the Andes.
* 18. *Acutifolia.* Groves of the Peruvian Andes.
* 19. *Micrantha.* Cold and lofty mountains of the Peruvian Andes.
* 20. *Glandulifera.* Peru.
* 21. *Dichotoma.* Peru.
* 22. *Rosea.* At Pozuzo.
* 23. *Philippica.* Near Manilla in Santa Cruz.
* 24. *Longiflora.* *Journ. de Phys.* 1790, p. 243.

Species 10—12 have been discovered by Humboldt and Bonpland; see *Plantæ Equinoctiales.* Sp. 13—22, see *Flor. Peruv.* Persoon ranks Sp. 4—9, and Sp. 23, 24, under the subgenus EXOSTEMA staminibus exsertis. The authors of the *Flor. Peruv.* are of opinion, that the Species of this subdivision should be referred to the genus PORTLANDIA. *Synopsis*, i. p. 197.

340. PORTLANDIA. *Cor.* clavato-infundibulif. *Antheræ* longitudinales. *Caps.* pentagona, retusa, 2-locularis, polysperma, coronata calyce 5-phyllo.
1. *Tetranda.* Savage Island, South Sea. *Shrub.*
2. *Grandiflora.* On rocks of Jamaica. *Shrub.*
3. *Coccinea.* Precipices of mountains in the W. of Jamaica. *Peren.*
4. *Hexandra.* Woods of Carthagena, Guiana, and Cayenne. *Shrub.*
* 5? *Corymbosa.* Andes. *Shrub.* (*Fl. Peruv.*)

330. ROELLA. *Cor.* infundibulif. fundo clauso valvulis staminiferis. *Stig.* 2-fidum. *Caps.* 2-locularis, cylindrica, infera.
1. *Ciliata.* Morocco and Ethiopia. *Shrub.*
2. *Squarrosa.* *Peren.*
3. *Decurrens.* *Ann.*
4. *Muscosa.* *Ann.*
5. *Spicata.* *Shrub.*

Species 2—5 from the Cape of Good Hope.

344. GOODENIA. *Cor.* supra longitudinaliter fissa genitalia exserens, limbo quinquefido secundo. *Anth.* lineares imberbes. *Stigma* urceolatum ciliatum. *Caps.* 2-locul. 2-valv. polysperma, dissepimento parallelo. *Sem.* imbricata.
1. *Ovata.* *Shrub.*
2. *Albida.*
3. *Lævigata.* *Shrub.*
4. *Paniculata.*
5. *Bellidifolia.*
6. *Stricta.*
7. *Ramosissima.*
8. *Heterophylla.*
9. *Hederacea.*
* 10. *Stelligera.*
* 11. *Humilis.*
* 12. *Gracilis.*
* 13. *Decurrens.*
* 14. *Acuminata.*
* 15. *Varia.*
* 16. *Rotundifolia.*
* 17. *Barbata.*
* 18. *Geniculata.*
* 19. *Lanata.*
* 20. *Glabra.*
* 21. *Mollis.*
* 22. *Elongata.*
* 23. *Hispida.*
* 24. *Coronopifolia.*
* 25. *Tenella.*
* 26. *Filiformis.*
* 27. *Quadrilocularis.*
* 28. *Purpurascens.*
* 29. *Pterigosperma.*
* 30. *Cærulea.*
* 31. *Incana.*
* 32. *Scapigera.*
* 33. *Viscida.*
* 34. *Repens.*
* 35. *Pumilis.*
* 36. *Calendulacea.*

All from New Holland and Van Diemen's Island. Sp. 34, which is the *radicans* of Cavanilles, is found also in Chili. See SCÆVOLA.

‡ 331. PHYTEUMA. *Cor.* rotata, laciniis linearibus, 5-partita. *Stigma* 2-seu 3-fidum. *Caps.* 2-seu-3-locularis infera.
1. *Pauciflora.* Mts. of Switzerl. and Styria. *Per.*
2. *Scheuchzeri.* Switzerl. and Piedmont. *Per.*
3. *Michelii.* Mont Cenis, Tuscany, and the Vallais. *Peren.*
4. *Hemisphærica.* Mountains of Switzerland, Italy, Austria, and the Pyrenees. *Peren.*
5. *Comosa.* Tyrol, and Mts. of Carniola. *Bien.*
6. *Orbicularis.* England, and mountains of Italy, Switzerland, Verona, and Hesse. *Peren.*
7. *Nigra.* Woody meadows in Carolina. *Peren.*
8. *Betonicæfolia.* Mts. of Dauphiny. *Peren.*
9. *Spicata.* In the woods of Switzerland, Austria, Germany, Engl. Fran. and Italy. *Peren.*
10. *Ovata.* In the subalpine meadows of the Sudetes, Bohemia, Switzerl. and Piedmont. *Per.*
11. *Virgata.* On mount Libanus. *Bien.*
12. *Lobelioides.* Armenia.
13. *Lanceolata.* Armenia.
14. *Rigida.* In the East.
15. *Amplexicaulis.* In the East.
16. *Pinnatæ.* Candia and the East.
* 17. *Campanuloides.* Mount Caucasus. *Peren.*

Persoon ranks Sp. 16. under the subgenus PETROMARULA. See *Synopsis*, i. p. 194.

332. TRACHELIUM. *Cor.* infundibulif. *Stigma* globosum. *Caps.* trilocularis, infera.
1. *Cæruleum.* Shady places in Italy and the East. *Bien.*
2. *Diffusum.* Cape of Good Hope.
3. *Tenuifolium.* Cape of Good Hope.
* 4. *Angustifolium.* Near Fezzan in Morocco.

‡ 329. CAMPANULA. *Cor.* campanulata, fundo clauso valvis staminiferis. *Stigma* 3-fidum. *Caps.* infera, poris lateralibus dehiscens.
1. *Cenisia.* Alps of Switzerl. and Cenis. *Peren.*
2. *Uniflora.* Mountains of Lapland. *Peren.*
3. *Bellardi.* Mountains of Italy. *Peren.*
4. *Pullæ.* Mts. of Austria and Stiria. *Peren.*
5. *Zoysii.* Mountains of Carniola. *Peren.*
6. *Gracilis.* New Zealand, New Caledonia, and New Holland.
7. *Glauca.* Japan. *Peren.*
8. *Grandiflora.* Siberia and Tartary. *Peren.*
9. *Tetraphylla.* Japan.
10. *Triphylla.* Japan. *Peren.*
11. *Verticillata.* In Dauria. *Peren.*
12. *Rotundifolia.* England and other parts of Europe. *Bien.* *Peren.*
13. *Linifolia.* Mountains of Lapland, Switzerland, Dauphiny, Austria, Bohemia. *Peren.*
14. *Pubescens.* Rocks in the wood of Bohemia. *Peren.*
15. *Linarioides.* Buenos Ayres and Monte Video.
16. *Carpathica.* South of Hungary, and Carpathian mountains. *Peren.*
17. *Lobelioides.* Madeira. *Ann.*
18. *Porosa.* Cape of Good Hope. A species of *Samolus*, according to *Brown.*
19. *Undulata.* Cape of Good Hope.
20. *Linearis.* Cape of Good Hope.

21. *Sessiliflora.* Cape of Good Hope.
22. *Patula.* England, Sweden, &c. *Bien.*
23. *Rapunculus.* Engl. Switzer. Fran. &c. *Bien.*
24. *Unidentata.* Cape of Good Hope.
25. *Fasciculata.* Cape of Good Hope. *Peren.*
26. *Persicifolia.* Rough parts of the N. of Eur. *Per.*
27. *Pyramidalis.* About Idria and in Carniola. *Bien.*
28. *Americana.* Pennsylvania. *Ann.*
29. *Nitida.* North America. *Peren.*
30. *Lilifolia.* Scotland, England, Siberia and Tartary. *Peren.*
31. *Ensifolia.* Volcanic Mt. in Bourbon. *Shrub.*
32. *Rhomboidea.* Mts. of Switzerl. and Italy. *Per.*
33. *Latifolia.* England, Switzerland, and Sweden. *Peren.*
34. *Urticifolia.* Germany and Bohemia. *Peren.*
35. *Stylosa.* Siberia. *Peren.*
36. *Rapunculoides.* Scotland, England, Switzerland, France, and Austria. *Peren.*
37. *Bononiensis.* Bologna and Carniola. *Peren.*
38. *Vesula.* Italy foot of Mount Vesulus. *Peren.*
39. *Ptarmicæfolia.* Armenia.
40. *Graminifolia.* Italy and Mts. of Carniola. *Per.*
41. *Trachelium.* Engl. and other pts. of Eur. *Per.*
42. *Glomerata.* England, France, Austria, Sweden. *Peren.*
43. *Cervicaria.* Switzerl. Germ. and Swed. *Bien.*
44. *Marginata.* Japan, at the way sides. *Peren.*
45. *Thyrsoidea.* Mountains of Switzerland, Harcynia, and Carniola. *Bien.*
46. *Petræa.* Baldo near Tunis.
47. *Adpressa.* 51. *Cinerea.*
48. *Subulata.* 52. *Peregrina.*
49. *Hispidula.* *Ann.* 53. *Cernua.*
50. *Paniculata.*

Sp. 47—53 from the Cape of Good Hope.

54. *Allionii.* Switzerl. France, and Italy. *Peren.*
55. *Punctata.* Siberia.
56. *Medium.* Germany and Italy. *Bien.*
57. *Barbata.* Mountains of Austria, Switzerland, and Piedmont. *Peren.*
58. *Spicata.* Lower Vallais. *Bien.*
59. *Strigosa.* In the East.
60. *Alpina.* Mts. of Scheeberg and Switzerl. *Per.*
61. *Mollis.* Syria, Sicily, Spain. *Ann.*
62. *Saxatilis.* Candia.
63. *Alliariæfolia.* In the East.
64. *Sibirica.* Siberia and Austria. *Bien.*
65. *Tridentata.* In the East. *Peren.*
66. *Laciniata.* In Greece and Mount Libanus.
67. *Stricta.* Syria and Palestine.
68. *Aurea.* Rocks of Madeira. *Shrub.*
69. *Fruticosa.* Cape of Good Hope.
70. *Speculum.* South of Europe. *Ann.*
71. *Hybrida.* Engl. Switzerl. and France. *Ann.*
72. *Prismatocarpus.* Cape of Good Hope. *Ann.*
73. *Cochlearifolia.* Apennines. *Peren.*
74. *Limonifolia.* In the East. *Ann.*
75. *Pentagonia.* Thrace. *Ann.*
76. *Perfoliata.* Virginia. *Ann.*
77. *Capensis.* Cape of Good Hope. *Ann.*
78. *Procumbens.* Cape of Good Hope.
79. *Tenella.* Cape of Good Hope. *Shrub.*
80. *Elatines.* Mts. South of Europe. *Peren.*
81. *Diffusa.* Calabria. *Peren.*
82. *Hederacea.* England, France, Spain, and Denmark. *Peren.*
83. *Erinoides.* Africa.
84. *Heterophylla.* In the East. *Peren.*
85. *Erinus.* Italy, Spain, and S. of France. *Ann.*

*86. *Versicolor.* Greece. *Peren.* (And. *Rep.* 396.)
*87. *Azurea.* Switzerland. *Per.* (*Bot. Mag.* 551.)
*88. *Collina.* Caucasus. *Peren.* (*Bot. Mag.* 927.)
*89. *Quadrifida.* N. Holland. Brown's *Prodr.*
*90. *Saxicola.* New Holland. iv. p. 560.
*91. *Divaricata.* Mts. of Carolina. Mich. *Fl. Am.*
*92. *Flexuosa.* Mts. of Carolina. i. p. 109.
*93. *Filiformis.* Conception in Chili. (*Fl. Peruv.*)
*94. *Alata.* Mount Atlas. (*Desfont.*)
*95. *Acuminata.* Pennsylv. and Virginia. (*Mich.*)
*96. *Crispa.* Armenia. (*Lamarck.*)
*97. *Bicaulis.* Pyrennees. (*La Peyrouse.*)
*98. *Lanuginosa.* Tartary. See Lamarck,
*99. *Tomentosa.* In the East. *Encyc. Meth.*
*100. *Argentea.* Armenia. i. p. 584.
*101. *Velutina.* Near Tlemsen, Mt. Atlas. (*Desf.*)
*102. *Ligulata.* Woods of Hungary. (*Kitaib.*)
*103. *Ligularis.* Alps?
*104. *Pelviformis.* Candia.
*105. *Tubulosa.* See Lamark, *Encyc.*
*106. *Violæ.* Siberia? i. p. 585, 586.
*107. *Parviflora.* In the E.
*108. *Lyrata.* In the East.
*109. *Interrupta.* Cape of Good Hope.
*110. *Ericoides.* *111. *Altiflora.* *112. *Plicata.*
*113. *Biflora.* Peru. (*Flor. Peruv.*)

Persoon ranks Sp. 69, 70, 71, 72, 75, 76, 109—113, under the subgenus LEGOUSIA. The generic character of CAMPANULA, given by Mr Brown, is—*Cal.* 5- (raro 4-) fid. *Cor.* campan. 5-fida. *Fil.* basi dilatata. *Stig.* 3-2-lobum. *Caps.* 3-2-locul. sæpius infera foraminibus lateralibus aperiens nunc apice supero valvato. *Prodromus*, p. 560.

‡ 342. LOBELIA. *Cal.* 5-fidus. *Cor.* 1-petala irregularis. *Anth.* cohærentes. (*Stam.* connata in tubum. *Persoon.*) *Caps.* infera 2-seu-3-locularis.

1. *Linearis.* Cape of Good Hope.
2. *Simplex.* Cape of Good Hope. *Ann.*
3. *Pinifolia.* Cape of Good Hope. *Shrub.*
4. *Dortmanna.* Lakes in the coldest parts of Europe. *Peren.*
5. *Tupa.* Peru. *Peren.*
6. *Kalmii.* Canada and Carolina. *Ann.*
7. *Paniculata.* Ethiopia.
8. *Graminea.* Peru.
9. *Grandis.* South America.
10. *Cornuta.* Cayenne.
11. *Depressa.* Cape of Good Hope.
12. *Columneæ.* New Granada. *Peren. Shrub.*
13. *Arborea.* Society Islands.
14. *Bellidifolia.* Cape of Good Hope. *Ann.*
15. *Triquetra.* Cape of Good Hope. *Peren.*
16. *Cineria.* Cape of Good Hope. *Ann.*
17. *Longiflora.* Jamaica. *Peren.*
18. *Tomentosa.* Cape of Good Hope.
19. *Secunda.* Cape of Good Hope.

lass V.
tandria.

20. *Acuminata.* Jamaica. *Shrub.*
21. *Stricta.* The Antilles, Guadaloupe, and St Vincent. *Peren.*
22. *Patula.* Cape of Good Hope.
23. *Assurgens.* High and cold parts of Jam. *Shr.*
24. *Cardinalis.* Virginia and Carolina. *Peren.*
25. *Ferruginea.* America.
26. *Debilis.* Cape of Good Hope. *Ann.*
27. *Siphilitica.* Dry parts of Virginia. *Peren.*
28. *Surinamensis.* Surinam. *Shrub.*
29. *Inflata.* Virginia and Canada. *Ann.*
30. *Cliffortiana.* Virginia and Canada. *Ann.*
31. *Urens.* France and Spain. *Ann.*
32. *Minuta.* Cape of Good Hope. *Peren.*
33. *Laurentia.* Italy and Candia. *Ann.*
34. *Radicans.* Japan.
35. *Campanuloides.* Japan.
36. *Erinus.* *Ann.*
37. *Erinoides.* *Ann.*
38. *Anceps.* *Ann.*
39. *Repens.*
40. *Thermalis.*
41. *Pubescens.* *Peren.*

Species 36—41. from the Cape of Good Hope.

42. *Zelanica.* China and India.
43. *Lutea.* Cape of Good Hope. *Ann.*
44. *Angulata.* New Zealand.
45. *Hirsuta.* *Shrub.*
46. *Pygmæa.*
47. *Coronopifolia.* *Per.*
48. *Crenata.*
*49. *Unidentata.* *Shr.*
*50. *Bicolor.* *Ann.*
*51. *Alata.* *Peren.*
*52. *Gracilis.* *Ann.*
*53. *Concolor.*
*54. *Quadrangularis.*
*55. *Membranacea.*
*56. *Purpurascens.*
*57. *Fluviatilis.*
*58. *Inundata.*
*59. *Pedunculata.*
*60. *Irrigua.*
*61. *Dentata.*
*62. *Gibbosa.*
*63. *Simplicicaulis.*
*64. *Stricta*
*65. *Heterophylla.*
*66. *Tenuior.*
*67. *Parvifolia.*
*68. *Dioica.*
*69. *Scapigera.*
*70. *Hypocrateriformis.*
*71. *Pulverulenta.* Chimborazo. *Shrub.*
*72. *Andropogon.* Quito.
*73. *Cordigera.* Chili.
} Cavan. *Icones.*
*74. *Decurrens.* Chili.
*75. *Conglobata.* Martinique.
*76. *Hirta.* Quito.
*77. *Biserrata.* Peru.
*78. *Mucronata.* Chili.
*79. *Persicifolia.* New Spain.
*80. *Comosa.* New Spain.
*81. *Fenestralis.*
*82. *Gigantea.* Quito.
} Cavan. *Icones.*
*83. *Acuminata.* Jamaica.
*84. *Laciniata.* St Domingo.
*85. *Puberula.* Carolina.
*86. *Crassiuscula.* Carolina
*87. *Amœna.* North America.
} Michaux. *Fl. Amer.* ii. p. 152.
*88. *Claytoniana.*
*89. *Gruina.* New Spain.
*90. *Campanulata.* C. of G. Hope.
*91. *Filiformis.* Mauritius.
} See Lam. *Enc. Meth.*
*92. *Chamæpithys.* Cape of Good Hope.
*93. *Breynii.* Africa.
*94. *Serpens.* Mauritius.
*95. *Alsinoides.* Cape of Good Hope.

Species 50—70. from N. Holland and Van Diem. Island. See Brown's *Prodr.* p. 562. Persoon ranks this genus under MONADELPHIA.

Class V.
Pentandria.

345. SCÆVOLA. *Cor.* 1-petala: tubo longitudinaliter fisso, *Limbo* 5-fido laterali. *Drupa* infera, 1-sperma. *Nux* 2-locularis.
1. *Lobelia.* East and West Indies. *Shrub.*
2. *Koenigii.* East Indies. *Shrub.*
3. *Sericea.* Savage Island. *Shrub.*

Persoon includes in this genus, *Goodenia lævigata* and *ramosissima.*

367. SCOEPPIA. *Cor.* campanulata. *Cal.* duplex; *exterior* 2-fidus inferus, *interior* superus integerrimus. *Stigma* capitatum. *Drupa* monosperma.
1. *Americana.* Santa Cruz and Montserrat. *Shr.*

372. MATTHIOLA. *Cor.* tubulosa, supera, indivisa. *Calyx* integer. *Drupa* nucleo globoso.
1. *Scabra.* America. *Shrub.*

363. MORINDA. *Flores* aggregati, monopetali. *Stigma* 2-fidum. *Drupæ* aggregatæ.
1. *Umbellata.* India. *Shrub.*
2. *Citrifolia.* India. *Shrub.*
3. *Royoc.* Warm parts of America. *Shrub.*

349. PSYCHOTRIA. *Cal.* 5-dentatus, coronans. *Cor.* tubulosa. *Bacca* globosa. *Sem.* 2, hemisphærica, sulcata.
1. *Asiatica.* East Indies. *Shrub.*
2. *Glabrata.* Rocks in the interior of Jam. *Shr.*
3. *Axillaris.* Woods of Guiana. *Shrub.*
4. *Laurifolia.* Jamaica and Hispaniola. *Shrub.*
5. *Parviflora.* Woods of Guiana. *Shrub.*
6. *Hirsuta.* Woods in the S. parts of Jam. *Shr.*
7. *Fœtens.* Mts. in the S. of Jamaica. *Shrub.*
8. *Citrifolia.* West Indies. *Peren.*
9. *Nitida.* Banks of rivers in Guiana. *Shrub.*
10. *Marginata.* Woods in the S. of Jamaica. *Shr.*
11. *Tenuifolia.* Hispaniola. *Shrub.*
12. *Nervosa.* Jamaica. *Shrub.*
13. *Carthaginensis.* Carthagena. *Shrub.*
14. *Myrstiphyllum.* Jamaica. *Shrub.*
15. *Laxa.* Mountains of Jamaica. *Shrub.*
16. *Parasitica.* Martinique, Dominica, Guadaloupe, St Christophers, and Montserrat. *Shr.*
17. *Horizontalis.* Hispaniola. *Shrub.*
18. *Nutans.* Chalky parts of Hispaniola. *Shrub.*
19. *Speciosa.* Otaheite. *Shrub.*
20. *Involucrata.* Jamaica and Guiana. *Shrub.*
21. *Flexuosa.* Barren parts of Cayenne. *Shrub.*
22. *Racemosa.* Woods of Guiana. *Shrub.*
23. *Violacea.* Woods of Guiana. *Shrub.*
24. *Brachiata.* High mts. in the S. of Jam. *Shr.*
25. *Grandis.* Mts. in the inter. and W. of Jam. *Shr.*
26. *Patens.* High mountains of Jamaica. *Shrub.*
27. *Uliginosa.* Mountains of Jamaica. *Peren.*
28. *Serpens.* East Indies. *Peren.*
29. *Herbacea.* India. *Peren.*
30. *Emetica.* Given under *Lonicera* by Persoon. America. *Shrub.*
31. *Corymbosa.* High mts. of Jamaica. *Shrub.*
32. *Pubescens.* Jamaica and West Indies. *Shrub.*
33. *Pedunculata.* Woody mts. of Jamaica. *Shrub.*
34. *Crocea.* West Indies. *Shrub.*
35. *Alpina.* Blue Mountains in Jamaica. *Shrub.*
36. *Paniculata.* Surinam and S. America. *Shrub.*
37. *Palicurea.* Woods in the West Indies and Guiana. *Shrub.*
38. *Lutea.* Guiana. *Shrub.*
39. *Longiflora.* Woods of Guiana. *Shrub.*

*40. *Pilosa.*

*41. *Subtomentosa.*

*42. *Macropoda.*

*43. *Gracilis.*

*44. *Macrophylla.*

*45. *Reticulata.*

*46. *Amethystina.*

*47. *Macrobotris.*

*48. *Thyrsiflora.*

*49. *Obovata.*

*50. *Sulphurea.*

*51. *Alba.*

*52. *Cymosa.*

*53. *Villosa.*

*54. *Foveolata.*

*55. *Mitis.*

*56. *Virgata.*

*57. *Trifida.*

*58. *Repanda.*

*59. *Hyacinthoides.*

*60. *Cœrulea.*

*61. *Tinctoria.*

*62. *Luteo-virescens.*

*63. *Viridis.*

Sp. 40—63 from Peru, see *Flor. Peruv.* ii. p. 60, &c. Sp. 34, 37, 38, 39, 59—63, are ranked by Persoon under the subgenus PALICURIA. *Cor.* tubo basi hinc gibbo obliquo aut subincurvo. *Flor.* colore utplurimum lutei, passim cœrulescentes. *Synopsis*, i. p. 205—208.

353. COFFEA. *Cor.* hypocrateformis. *Stam.* supra tubum. *Bacca* infera, disperma. *Sem.* arillata.

1. *Sambucina.* Friendly Islands. *Shrub.*

2. *Opulina.* New Caledonia. *Shrub.*

3. *Odorata.* Tanna, Friendly Islands. *Shrub.*

4. *Arabica.* Arabia Felix and Ethiopia. *Shrub.*

5. *Triflora.* Island of Otaheite. *Shrub.*

6. *Gujanensis.* Woods of Guiana. *Shrub.*

7. *Paniculata.* Woods of Guiana. *Shrub.*

8. *Occidentalis.* Warm parts of America. *Shrub.*

*9. *Mauritiana.* Bourbon. (Lamarck, *Encyc.*)

*10. *Racemosa.*

*11. *Umbellata.*

*12. *Ciliata.*

*13. *Verticillata.*

*14. *Nitida.*

*15. *Foveolata.*

*16. *Longifolia.*

*17. *Microcarpa.*

*18. *Acuminata.*

*19. *Subsessilis.*

Sp. 9—19 from Peru, see *Flor. Peruv.* ii. p. 64, &c. Sp. 8, 18, 19, are ranked by Persoon under the subgenus POTIMA. *Bacca* 1-sperma: *Sem.* 1 nempe abortivo. *Synopsis*, i. p. 208.

354. CHIOCOCCA. *Cor.* infundibuliformis, æqualis. *Bacca* 1-locularis, 2-sperma, infera.

1. *Racemosa.* Jamaica and Barbadoes. *Shrub.*

2. *Barbata.* Marquesa isles, Society and Friendly Islands. *Shrub.*

*3. *Brachiata.* Groves of Peru. *Flor. Peruv.*

389. SERISSA. *Cor.* infundibulif. fauce ciliata, laciniis limbi subtrilobis! *Bacca* infera 2-sperma.

1. *Fœtida.* India, China, Cochinchina, Japan. *Shr.*

357. CEPHAELIS. *Flores* capitati involucrati. *Cor.* tubulosa. *Stigma* 2 partitum. *Bacca* disperma. *Receptaculum* paleaceum.

1. *Violacea.* Guiana and the West Indies. *Shrub.*

2. *Tomentosa.* Woods of Guiana and in the island of Trinidad. *Shrub.*

3. *Punicea.* Jamaica. *Shrub.*

4. *Elata.* High mts. in the S. of Jamaica. *Shrub.*

5. *Axillaris.* St Christophers. *Shrub.*

6. *Purpurea.* *Peren.*

7. *Alba.* *Shr.*

8. *Glabra.* *Shr.*

9. *Involucrata.* *Shr.*

10. *Tetrandra.* *Shr.*

11. *Sessiliflora.* *Shr.*

12. *Muscosa.* At rivers and on mts. Martiniq. *Shr.*

Sp. 6—11 from Guiana.

Persoon places under this genus *Lonicera bubalina* and *Psychotria emetica.*

355. VANGUERIA. *Cal.* 5-dentat. *Corollæ* tubus globosus, fauce pilosa. *Stigma* 2-lamellatum. *Bacca* infera 4-5-sperma.

1. *Edulis.* China, India. *Shrub.*

347. SOLENA. *Cal.* 5-fidus superus. *Cor.* hypocrateriformis, tubo longissimo, fauce pilosa. *Styl.* filiformis. *Stig.* trifidum. *Bacca* unilocularis polysperma.

1. *Longiflora.* At rivers in Guiana. *Shrub.*

476. WEBERA. Contorta. *Bacca* infera 2-locularis, loculis 1-spermis. *Stylus* elevatus. *Stigma* clavatum. *Cal.* 5-fidus.

1. *Corymbosa.* Malabar and Ceylon. *Shrub.*

2. *Cymosa.* East Indies. *Shrub.*

3. *Tetrandra.* East Indies. *Shrub.*

Sp. 1, 2, are given by Persoon under CUPIA, a subgenus to CANTHIUM, Its character is CUPIA, inormia, stigma elevata. *Synopsis*, i. p. 200.

477. GARDENIA. Contorta. *Bacca* infera, 2-locularis polysperma. *Stylus* elevatus, bilobus. *Cal.* laciniis verticalibus.

1. *Radicans.* Japan. *Shrub.*

2. *Florida.* East Indies, Surat, Amboyna, and Cape of Good Hope. *Shrub.*

3. *Thunbergia.* C. of G. Hope and Manilla. *Shr.*

4. *Latifolia.* Mts. in the East Indies. *Shrub.*

5. *Clusiæfolia.* Bahama islands. *Shrub.*

6. *Gummifera.* Ceylon. *Shrub.*

7. *Mussænda.* Woods of Carthagena. *Shrub.*

8. *Genipa.* South America. See the new genus GENIPA. *Shrub.*

9. *Rothmannia.* Cape of Good Hope. *Shrub.*

10. *Uliginosa.* Boggy parts of India. *Shrub.*

11. *Armata.* Woods of Martinique and Carthagena. *Shrub.*

12. *Spinosa.* China near Macao. *Shrub.*

13. *Dumetorum.* East Indies near Madras. *Shrub.*

14. *Randia.* Jamaica and Martinique. *Shrub.*

15. *Micranthus.* China and Ceylon. *Shrub.*

16. *Scandens.* China. *Shrub.*

17. *Multiflora.* East Indies. *Shrub.*

*18. *Longiflora.* Sierra Leone. *Shrub.*

*19. *Longiflora.* Groves of Peru. (*Fl. Peruv.*)

348. UCRIANA. *Cal.* 5-dentatus superus. *Cor.* hypocrateriformis; tubo longissimo, fauce ventricosa nuda. *Antheræ* sessiles. *Styl.* clavatus pilosus. *Stigma* 2-lamillatum. *Bacca* 2-locularis polysperma.

1. *Speciosa.* Woods of Guiana. *Shrub.*

356. CANEPHORA. *Cal.* commun. tubulosus dentatus multiflorus. *Perianth.* 5-seu-6-fida. *Cor.* campanulata 5-seu-6 fida. *Fruct.* inferus 2-spermus.

1. *Axillaris.* Madagascar.

2. *Capitata.* Madagascar. *Shrub.*

358. BERTIERA. *Cor.* 5-fida. *Stigma* 2-lamellatum. *Bacca* 2-locul. polysperma.

1. *Gujanensis.* Guiana and Cayenne. *Shrub.*

‡ 361. LONICERA. *Cor.* 1-petala, irregularis. *Bacca* polysperma, 2-locularis infera.

1. *Caprifolium.* England and other parts of Europe. *Shrub.*

2. *Dioica*, or *Parviflora* of Persoon. North America. *Shrub.*

3. *Sempervirens.* Virginia and Mexico. *Shrub.*

4. *Grata.* North America. *Shrub.*

5. *Implexa.* Minorca. *Shrub.*

6. *Periclymenum.* England and other parts of Europe. *Shrub.*

7. *Japonica.* Japan. *Shrub.*

8. *Nigra.* Dauphiny, France, Switzerland. *Shr.*

9. *Quadrifolia.* *Shrub.*

10. *Tartarica.* Tartary. *Shrub.*

11. *Xylosteum.* Hedges in the cold pts. of Eur. *Shr.*

12. *Pyrenaica.* Pyrennees and Siberia. *Shrub.*

13. *Alpigena.* Switzerland, Pyrenees, &c. *Peren.*

14. *Cœrulea.* Switzerland. *Shrub.*

15. *Orientalis.* Asia Minor. *Shrub.*

16. *Flexuosa.* Japan. *Shrub.*

17. *Symphoricarpos.* Virginia and Carolina. *Shr.*

18. *Diervilla.* Nova Scotia and N. York. *Shrub.*

19. *Bubalina.* Cape of Good Hope. *Shrub.*

20. *Corymbosa.* Peru. *Shrub.*

*21. *Canescens.* Magadore and Mount Trara. *Shrub.* (*Desfont.*)

*22. *Racemosa.* Virginia and Carolina.

Persoon ranks Sp. 1, 2, 3, 4, 6, 7 under the subgenus CAPRIFOLIUM; Sp. 8, 10—16, 21, under the subgenus XYLOSTEON; and Sp. 17, 22, under the subgenus SYMPHORICARPOS. See *Synop.* i. p. 213.

362. TRIOSTEUM. *Cor.* monopetala, subæqualis. *Cal.* longitudine corollæ. *Bacca* 3-locularis, 1-sperma, infera.

1. *Perfoliatum.* North America. *Shrub.*

2. *Angustifolium.* Virginia. *Peren.*

3. *Triflorum.* Madagascar?

467. PLOCAMA. *Cal.* 5-dentatus superus. *Cor.* campanulata 5-fida. *Bacca* 3-locularis, loculis monospermis.

1. *Pendula.* Canary islands. *Shrub.*

370. MUSSÆNDA. *Cor.* infundibulif. *Stigmata* 2. Crassiuscula. *Bacca* oblonga, infera. *Sem.* quadrifariam disposita.

1. *Frondosa.* India. *Shrub.*

2. *Glabra.* East Indies. *Shrub.*

*3. *Pubescens.* China. *Shrub.*

360. SCHWENKFELDIA. *Involucrum* 4-fidum. *Cor.* hypocraterif. *Stigma* 5-partitum. *Bacca* 5-locul. polysperma.

1. *Hirta.* Jamaica. *Shrub.*

2. *Cinerea.* Hedges in Guiana and Cayenne. *Shr.*

3. *Aspera.* Banks of rivers in Guiana. *Shrub.*

The plants of this genus are given by Persoon under the new genus SABICEA.

359. HAMELLIA, or DUHAMELIA of Persoon. *Cor.* 5-fida. *Bacca* 5-locularis, infera, polysperma.

1. *Patens.* Hedges in the mts. of Hispaniola. *Shr.*

2. *Axillaris.* Jamaica and Hispaniola. *Peren.*

3. *Chrysantha.* Mountains in the W. parts of Jamaica and the Caraccas. *Shrub.*

4. *Ventricosa.* Dry hills of Jamaica. *Shrub.*

5? *Sessiliflora*, or *Glabra* of Persoon. Woods of Guiana. *Shrub.*

368. ERITHALIS. *Cor.* 5-partita; laciniis recurvis. *Cal.* urceolatus. *Bacca* 10-locularis, infera.

1. *Fruticosa.* Jamaica and Martinique. *Shrub.*

2. *Polygama.* Society Islands. *Shrub.*

SECT. VII. *Flowers with Four Petals.*

365. STROEMIA. *Cor.* 4-petala vel nulla. *Cal.* 4-phyllus. *Nectar.* ligulatum. *Bacca* corticosa pedicellata.

1. *Farinosa.* Arabia Felix. *Shrub.*

2. *Tetrandra.* India. *Shrub.*

3. *Glandulosa.* Arabia Felix. *Shrub.*

4. *Rotundifolia.* Arabia Felix. *Shrub.*

SECT. VIII. *Flowers with five Petals, Inferior.*

442. HIRTELLA. *Pet.* 5. *Filam.* longissima, persistentia, spiralia. *Bacca* 1-sperma. *Stylus* lateralis.

1. *Americana.* Brasil, Guiana, and Cayenne. *Shr.*

2. *Triandra.* Woods of Jamaica, Hispaniola, and Martinique. *Shrub.*

3. *Paniculata.* Cayenne. *Shrub.*

*4. *Peruviana.* Groves of Chinchao. *Shr.* (*Fl. Peruv.*)

*5. *Rugosa.* Porto Rico. (*Stam.* 3.) *Shr.* (*Persoon.*)

‡ 405. RHAMNUS. *Cal.* tubulosus. *Cor.* squamæ stamina munientes calyci insertæ. *Bacca.*

1. *Catharticus.* Hedges and watery places in Europe.

2. *Infectorius.* Spain, France, Carniola, and Italy.

3. *Lycioides.* Spain.

4. *Erythroxylon.* Siberia.

5. *Oleoides.* Spain.

6. *Crenulatus.* Teneriffe.

7. *Saxatilis.* Mountains of Baden, Italy, and Switzerland.

8. *Theezans.* China.

9. *Sarcomphalus.* America.

10. *Ferreus.* Island of Santa Cruz.

11. *Lævigatus.* Santa Cruz.

12. *Tetragonus.* Cape of Good Hope.

13. *Polifolius.* New Zealand?

14. *Valentinus.* Mountains of Valentia, Mecca, and Palermo.

15. *Cubensis.* Coasts of Cuba.

16. *Colubrinus*, given under CEANOTHUS by Persoon. America.

17. *Davuricus.* In Dauria.

18. *Alpinus.* Mountains of Switzerland, Carniola, and Mount Meissner in Hesse.

19. *Pumilus.* Mount Baldo and Carniola.

20. *Frangula.* Damp groves north of Europe.

21. *Latifolius.* Mts of the Azores, St Miguel.

22. *Glandulosus.* Madeira and Canary Islands.

23. *Ellipticus*, the *Ceanothus reclinatus* of Persoon. Jamaica and Island of St Bartholemew.

24. *Prinoides.* Cape of Good Hope.

25. *Mystacinus.* Abyssinia.

26. *Alnifolius.* North America?

27. *Sphærospermus.* Temperate parts of Jamaica.

28. *Hybridus.*

29. *Alaternus.* South of Europe.

30. *Carpinifolius.* Siberia in the mountains of Imeretia.

31. *Capensis.* Cape of Good Hope.

32. *Circumscissus.* East Indies.

*33. *Carolinianus.* Carolina.
*34. *Minutiflorus.* Coasts of Carolina.
*35. *Racemosus.*
} See Michaux, *Fl. Amer.*

*36. *Cassinoides.* St Dominica.

*37. *Umbellatus.* New Spain. (*Cavanilles.*)

*38. *Trinervis.* Island of Luzon near Manilla. (*Cavanilles.*)
*39. *Sanguineus.* Gallicia, near St Jacob. (*Ortega.*)
*40. *Cubensis.* Island of Cuba. (*Ortega.*)
Species 1—32. shrubby.

Under this genus Persoon ranks the *Zizyphus volubilis* of Willd. as a species of the subgenus OENOPLIA; and he also places here the genus ZIZYPHUS of Willd. as a subgenus. The *Zizyphus paliurus* is likewise given as a species of a third subgenus PALIURUS. In the genus *Rhamnus* the plants have 1 style, in *Zizyphus* 2, in *Paliurus* 3, and in *Oenoplia*, the flowers are diœcious. *Synopsis*, i. p. 240.

412. CEANOTHUS. *Petala* 5, saccata fornicata. *Bacca* sicca, 3-locularis, 3-sperma.
1. *Americanus.* Virginia and Carolina. *Shrub.*
2. *Macrocarpus.* New Spain. *Shrub.*
3. *Asiaticus.* Ceylon. *Shrub.*
4. *Africanus.* Ethiopia. *Shrub.*
5. *Capsularis.* Island of Otaheite. *Shrub.*
*6. *Microphyllus.* North America. *Shrub.* See Michaux, *Amer.* i. p. 155.
*7. *Globulosus.* New Holland. *Shrub.* See Labillard. *Nov. Holl.* i. p. 61.
*8. *Granulosus.* Groves of Peru. } See *Flor. Peruv.* iii. p. 5.
*9. *Pubescens.* Groves of the Andes. }

423. CELASTRUS. *Cor.* 5-petala, patens. *Caps.* 3-angularis, 3-locularis. *Sem.* calyptrata.
1. *Lucidus.*
2. *Microphyllus.*
3. *Bullatus.* Virginia.
4. *Laurinus.*
5. *Rostratus.*
6. *Undulatus.* Bourbon.
7. *Octogonus.* Peru.
8. *Filiformis.* Cape of Good Hope.
9. *Scandens.* Canada.
10. *Paniculatus.* East Indies.
11. *Procumbens.*
12. *Acuminatus.*
13. *Cassinoides.* Canary islands.
14. *Striatus.* Japan.
15. *Cernuus.*
16. *Undatus.*
17. *Edulis.* Arabia Felix.
18. *Crenatus.* Marquesa Islands South Sea.
19. *Dilatatus.* Japan.
20. *Myrtifolius.* Virginia.
21. *Maytenus.* Chili.
22. *Tetragonus.*
23. *Articulatus.* Japan.
24. *Alatus.* Japan.
25. *Linearis.*
26. *Integrifolius.*
27. *Emarginatus.* E. Indies.
28. *Phyllacanthus.* Senegal.
29. *Buxifolius.*
30. *Pyracanthus.*
31. *Rotundifolius.*
32. *Parviflorus.* Arabia Felix.
*33. *Macrocarpus.* Groves of Munna. }
*34. *Verticillatus.* Groves of Cuchero. } See *Flor. Peruv.* iii. p. 8.
*35. *Confertus.* Groves of Peru. }
*36. *Multiflorus.* Africa? (Lamarck, *Encyc.*)
Species 1—32 shrubby. Species 1, 2, 4, 5, 11, 12, 15, 16, 22, 25, 26, 31, from the Cape. Species 29, 30 from Ethiopia.

‡424. EUONYMUS. *Cor.* 5-petala. *Caps.* 5-gona, 3-locularis, 3 valvis, colorata. *Sem.* calyptrata.
1. *Tobira.* Japan.
2. *Japonicus.* Japan.
3. *Europeus.* Engl. and other parts of Europe.
4. *Verrucosus.* Hills of Carniola.
5. *Latifolius.* Silesia, Bohemia, Austria, south of Hungary, Styria, and Switzerland.
6. *Atropurpureus.* North America.
7. *Americanus.* Virginia.
All shrubby.

429. STAAVIA. *Flores* aggregati. *Stam.* calyci inserta. *Styli* 2 coaliti. *Bacca* 5-sperma corticata. *Receptaculum* paleaceo-villosum.
1. *Radiata.* Cape of Good Hope. *Shrub.*
2. *Glutinosa.* Cape of Good Hope. *Shrub.*

454. EUPAREA. *Cal.* 5-phyllus. *Cor.* 5-12-petala. *Bacca* exsucca polysperma.
1. *Amoena.* New Holland.

440. BILLARDIERA. *Petala* quinque, foliolis calycinis alterna. *Nectar.* nullum. *Stigma* simplex. *Bacca* supera polysperma.
1. *Scandens.* New Holland. *Shrub.*
*2. *Mutabilis.* New South Wales. *Shrub.*

414. RUYSCHIA. *Cal.* 5-phyllus. *Cor.* 5-petala reflexa. *Stylus* 0. *Bacca?* polysperma.
1. *Clusiæfolia.* Woods in the interior of Martinique, on the trunks of trees. *Shrub.*
2. *Surubea.* Woods of Guiana, on the banks of the river Gallion. *Shrub.*

453. VITIS. *Petala* apice cohærentia, emarcida. *Bacca* 5-sperma, supera.
1. *Vinifera.* In the temperate parts of all the four quarters of the globe. *Shrub.*
2. *Palmata.* Virginia. *Shrub.*
3. *Indica.* East and West Indies. *Shrub.*
4. *Flexuosa.* Japan. *Shrub.*
5. *Labrusca.* North America. *Shrub.*
6. *Vulpina.* Virginia. *Shrub.*
7. *Heterophylla.* Japan. *Shrub.*
8. *Laciniosa.* *Shrub.*
9. *Hederacea.* Canada. *Shrub.*
10. *Heptaphylla.* East Indies. *Shrub.*
11. *Pinnata.* *Shrub.*
12. *Arborea.* Carolina, Virginia. *Shrub.*

439. ESCALLONIA, the *Stereoxylon* of the *Flor. Peruv.* *Bacca* bilocularis, polysperma. *Cal.* cingens fructum. *Stigma* capitatum.
1. *Myrtilloides.* New Granada. *Shrub.*
2. *Serrata.* South America at the Straits of Magellan. *Shrub.*
*3. *Corymbosa.* Peru.
*4. *Virgata.* Mountains and wet woods of Peru.
*5. *Resinosa.* Cold hills of Peru.
*6. *Rubra.* Mts. of Chili, in the fissures of rocks.
*7. *Revoluta.* Near Conception.
*8. *Pulverulenta.* Woods of Chili.
*9. *Pendula.* Groves of Peru.

In the *Flor. Peruv.* p. 66, the following addition is made to the generic character of ESCALLONIA. *Caps.* 2-locul. calyce coronata, basi rimis 2-4-dehiscens. *Recept.* 2 in singulo loco. *Dissepimentum* interruptum. See Persoon's *Synopsis*, i. p. 234.

441. MANGIFERA. *Cor.* 5-petala. *Drupa* reniformis.
1. *Indica.* India. *Shrub.*
2. *Laxiflora.* Island of Mauritius. *Shrub.*
3. *Axillaris.* India. *Shrub.*

406. ZIZYPHUS. *Cal.* tubulosus. *Cor.* squamæ stamina munientes calyci insertæ. *Drupa* nuce mono-vel disperma.

1. *Lineatus.* China and Ceylon.
2. *Volubilis.* Carolina. Given by Persoon under the subgenus ŒNOPLIA.
3. *Paliurus.* Spain, south of France, Italy, Carniola, and Mount Caucasus.
4. *Lotus.* Tunis.
5. *Napeca.* Ceylon.
6. *Jujuba.* India.
7. *Xylopyrus.* Deserts in the East Indies.
8. *Œnoplia.* Ceylon.
9. *Vulgaris.* South of Europe.
10. *Spina Christi.* Ethiopia and Palestine.

*11. *Sinensis.* China? (*Lamarck.*)
*12. *Ignaneus.* Antilles and Curaçoa.
*13. *Mauritiana.* Mauritius. (*Lamark.*)
*14. *Rotundifolius.* Ceylon. (*Lamarck.*)
*15. *Angulatus.* (*Lamarck.*)
*16. *Peruvianus.* Peru. (*Lamarck.*)

Species 1—10 shrubby.
See RHAMNUS.

404. SCHREBERA. *Cal.* 6-partit. *Cor.* 5-petala. *Nect.* margo germen cingens staminiferum. *Drupa* sicca; nuce semibiloculari.

1. *Albens.* Ceylon and Coromandel. *Shrub.*

The genus *Schrebera* of Persoon, given in the class DIANDRIA, is different from this genus. Persoon gives the species *Albens* under ELEODENDRUM.

438. ELEODENDRUM. *Cor.* 5-petala. *Drupa* ovata, *nuce* 2-loculari.

1. *Orientale.* *Shrub.*
2. *Argan.* Barbary, between the rivers Tansif and Suz. *Shrub.*

*3. *Australe.* New South Wales. *Shrub.*

430. WALKERA. *Cal.* 5 partitus inferus. *Cor.* 5-petala. *Drupæ* 5 monospermæ. *Nuces* reniformes.

1. *Serrata.* East Indies. *Shrub.*

451. CORYNOCARPUS. *Cal.* 5-phyll. inferus. *Cor.* 5-petala. *Nect.* 5 petaliformia cum petalis alternantia basi glandulifera. *Nux* 1-sperma clavata.

1. *Lævigata.* New Zealand. *Shrub.*

435. HUMBOLDTIA. *Cal.* 4-partitus. *Petala* 5. *Legumen* oblongum compressum.

1. *Laurifolia.* Ceylon. *Shrub.*

425. PILOCARPUS. *Cal.* 5-phyllus. *Cor.* 5-petala. *Stamina* sub germine inserta. *Capsulæ* 5-basi coalitæ 1 spermæ elasticæ. *Semina* arillata.

1. *Racemosus.* Mts. of Montserrat. *Shrub.*

436. CEDRELA. *Cal.* marcescens. *Cor.* 5-petala infundibuliformis, basi ad ⅓ receptaculo adnata. *Caps.* lignosa, 5-locularis, 5-valvis. *Sem.* deorsum imbricata, ala membranacea.

1. *Odorata.* South America. *Shrub.*

437. CALODENDRUM. *Cal.* 5-partitus. *Cor.* 5-petala. *Nect.* 5-phyllum. *Caps.* 5-locularis 5-angularis.

1. *Capense.* Cape of Good Hope. *Shrub.*

413. SCOPOLIA, the TODDALIA of Persoon. *Cal.* 5-fidus. *Cor.* 5-petala. *Stigma* capitatum. *Capsula* baccata, 5-locul. loculis 1-spermis.

1. *Aculeata.* East Indies. *Shrub.*
2. *Inermis.* Island of Bourbon? *Shrub.*

420. POLYCARDIA. *Petala* 5, rotundata. *Stigma* lobatum. *Caps.* 5-locul. 5-valv. *Sem.* arillata.

1. *Madagascarensis.* Madagascar. *Shrub.*

431. PITTOSPORUM. *Cal.* deciduus. *Petala* 5 conniventia in tubum. *Caps.* 2-5 valvis, 2-5 locularis. *Sem.* tecta pulpa.

1. *Coriaceum.* Canary islands. *Shrub.*

*2. *Tobira.* China. *Shrub.* This is the *Evonymus tobira* of Willdenow.
*3. *Undulatum.* Canary Isles. New South Wales. *Shrub.*

417. BUTTNERIA. *Cor.* 5-petala. *Nectar.* 5-phyllum. *Filamenta* apice nectarii inserta. *Caps.* 5-cocca, muricata.

1. *Scabra.* South America. *Shrub.*
2. *Tereticaulis.* Peru. *Shrub.*
3. *Microphylla.* America. *Shrub.*
4. *Ovata.* Peru. *Shrub.*
5. *Herbacea.* Lima. *Shrub.*
6. *Cordata.* Top of Mts. in India. *Peren.*
7. *Catalpæfolia.* Caraccas. *Shrub.*

*8. *Sulcata.* Warm parts of Peru. } See *Flor. Peruv.* iii. p. 10.
*9. *Hirsuta.* Andes. }

418. AYENIA. *Petala* 5 in stellulam connata. *Nect.* verceolus pistillum tegens, staminiferum. *Caps.* quinque-locularis.

1. *Pusilla.* Jamaica, Cumana, and Peru. *Ann.*
2. *Lævigata.* Jamaica. *Shrub.*
3. *Tomentosa.* Cumana.
4. *Magna.* Cumana. *Peren.*

See *Flor. Peruv.* iii. p. 11. "Hoc et antecedens genus," says Persoon, "potius ad eorum familiam, ad *Malvaceam* in classem Monadelphiam transportanda." *Synopsis*, i. p. 263.

419. GLUTA. *Cal.* campanulatus deciduus. *Petala* 5 inferne adglutinata columnæ germinis. *Filamenta* apici columnæ inserta. *Germen* columnæ insidens.

1. *Benghas.* Java.

This genus might perhaps be arranged under the class GYNANDRIA.

426. DIOSMA. *Cor.* 5-petala. *Nectaria* 5 supra germen. *Caps.* 3 seu 5, coalitæ. *Semina*, calyptrata.

1. *Oppositifolia.*
2. *Obtusata.*
3. *Linearis.*
4. *Virgata.*
5. *Alba.*
6. *Hirsuta.*
7. *Rubra.*
8. *Pectinata.*
9. *Ericoides.*
10. *Hispida.*
11. *Ciliata.*
12. *Bifurca.*
13. *Bifida.*
14. *Capitata.*
15. *Villosa.*
16. *Cupressina.*
17. *Imbricata.*
18. *Marginata.*
19. *Lanceolata.*
20. *Pubescens.*
21. *Latifolia.*
22. *Crenata.*
23. *Tetragona.*
24. *Uniflora.*
25. *Rugosa.*
26. *Ovata.*
27. *Barbigera.*
28. *Pulchella.*
29. *Betulina.*
30. *Orbicularis.*

*31. *Hirta.*
*32. *Cerefolium.*
*33. *Serratifolia.*
*34. *Speciosa.*

All shrubby, and from the Cape of Good Hope, except Sp. 7, 9, 19, which are from Ethiopia.

314. SPRENGELIA, or POIRETIA of Persoon. *Cal.*

Class V. Pentandria.

5-partit. persistens. *Cor.* 5-petala. *Stam.* receptaculo inserta. *Anth.* connatæ. *Capsula* 5-locul. 5-valvis, dissepimentis e medio valvularum.
1. *Incornata.* New Holland. *Shrub.*

427. Hovenia. *Cal.* 5-partit. *Cor.* 5-petala. *Stigmata* 3. *Caps.* 3-locul, 3-valv.; loculis 1-spermis.
1. *Dulcis.* Japan. *Shrub.*

335. Nauclea. *Cor.* infundibulif. *Caps.* infera, bilocularis, polysperma. *Recept.* commune globosum pilosum.
1. *Orientalis.* East Indies. *Shrub.*
2. *Purpurea.* East Indies. *Shrub.*
3. *Parvifolia. Parviflora* of Persoon. East Indies. *Shrub.*
4. *Africana.* Guinea. *Shrub.*
5. *Aculeata.* Woods of Guiana. *Shrub.*
6. *Cornifolia.* East Indies. *Shrub.*

‡ 447. Impatiens. *Cal.* 2 phyllus. *Cor.* 5 petala, irregularis, nectario cucullato. *Anth.* connatæ. *Caps.* supera, 5 valvis.
1. *Bifida.* Cape of Good Hope.
2. *Chinensis.* China. *Ann.*
3. *Latifolia.* India. *Ann.*
4. *Capensis.* Cape of Good Hope.
5. *Oppositifolia.* Sandy parts of Ceylon.
6. *Fasciculata.* Malabar.
7. *Cornuta.* Ceylon. *Ann.*
8. *Balsamina.* India. *Ann.*
9. *Biflora.* Carolina.
10. *Triflora.* Marshy parts of Ceylon.
11. *Natans.* East Indies.
12. *Nolitangere.* England, Eur. and Canada. *Per.*
*13. *Coccinea.* E. Indies. *Ann.* (*Bot. Mag.* 1256.)

‡446. Viola. *Cal.* 5-phyllus. *Cor.* 5-petala, irregularis, postice cornuta. *Anth.* cohærentes. *Caps.* supera, 3 valvis, 1-locularis.
1. *Palmata.* Virginia. *Peren.*
2. *Pedata.* Virginia. *Peren.*
3. *Pinnata.* Siberia and mts. of Europe. *Peren.*
4. *Sagittata.* Pennsylvania. *Peren.*
5. *Lanceolata.* Canada and Siberia. *Peren.*
6. *Obliqua.* Pennsylvania and Virginia. *Peren.*
7. *Cucullata.* North America. *Peren.*
8. *Primulifolia.* Siberia and Virginia. *Peren.*
9. *Hirta.* Engl. and other parts of Europe. *Per.*
10. *Magellanica.* Boggy parts of Terra del Fuego. *Peren.*
11. *Palustris.* Engl. and other parts of Eur. *Per.*
12. *Odorata.* Engl. and other parts of Europe. *Per.*
13. *Canina.* Engl. and other parts of Europe. *Per.*
14. *Montana.* Mountains of Lapland, Austria, and Germany, and Mount Baldo. *Peren.*
15. *Nummularifolia.* Mountains of Dauphiny and Piedmont. *Peren.*
16. *Cenisia.* Mont Cenis. *Peren.*
17. *Canadensis.* Canada. *Peren.*
18. *Striata.* North America. *Peren.*
19. *Pubescens.* North America. *Peren.*
20. *Mirabilis.* Groves of Germ. and Sweden. *Per.*
21. *Biflora.* Lapl. Austria, Switzerl. Engl. *Per.*
22. *Uniflora.* Siberia. *Peren.*
23. *Decumbens.* Cape of Good Hope. *Peren.*
24. *Tricolor.* Engl. and other parts of Europe. *An.*
25. *Grandiflora.* Mts. of Switzerl. Pyrenees. *Per.*
26. *Zoysii.* Mountains of Carinthia. *Peren.*
7. *Calcarata.* Pyrenees and the Swiss Alps. *Per.*
28. *Cornuta.* Pyrenees. *Peren.*
29. *Capensis.* Cape of Good Hope. *Shrub.*
30. *Arborescens.* Spain. *Shrub.*
31. *Stipularis.* West Indies, St Christoph. *Per.*
32. *Parviflora.* Warm regions of S. Amer. *Per.*
33. *Enneasperma.* India. *Peren.*
34. *Suffruticosa.* India. *Shrub.*
35. *Calceolaria.* Cumana, Cayenne, Martiniq. *Per.*
36. *Oppositifolia.* Cumana. *Shrub.*
37. *Hybanthus.* South America. *Shrub.*
38. *Ipecacuanha.* Brasil. *Shrub.*
39. *Diandra.*
*40. *Cheiranthifolia.* Loftiest mts. of the Canaries.
*41. *Lactea.* England. *Peren.*
*42. *Concolor.* North America. *Peren.*
*43. *Verticillata.* South America. *Peren.*
*44. *Lutea.* Britain. *Peren.*
*45. *Rotundifolia.* High mts. of Carolina. (*Mich.*)
*46. *Philippica.* Isle of Luzon. (*Cavanilles.*)
*47. *Pennsylvanica.* Pennsylvania. } S. Michaux,
*48. *Hastata.* Mts. of Carolina. } *Flor. Amer.*
*49. *Debilis.* Alleghany mountains. } i. p. 149.
*50. *Rothomagensis.* Near Rouen. *Per.* (*Thuill.*)
*51. *Pumila.* Mt. Corie in Dauphiny. *Per.* (*Vill.*)
*52. *Maculata.* (*Cavanilles.*)
*53. *Rubella.* St Carlos. *Shrub.* (*Cavanilles.*)
*54. *Capillaris.* Tulcahuano. *Shrub.* (*Cavanilles.*)
*55. *Glutinosa.* Monte Video. (*Ventenat.*)
*56. *Buxifolia.* Madagascar. (*Ventenat.*)
*57. *Stricta.* St Domingo. *Peren.* (*Ventenat.*)

Persoon ranks the species 32, 33, 35, 38, 43, 55, 56, 57 under the subgenus Ionia. See *Synopsis*, i. p. 256. and Ventenat, *Jard. de Malmais*, p. 27.

459. Claytonia. *Cal.* 2-valvis. *Cor.* 5-petala. *Stigma* 3 fidum. *Caps.* 3 valvis, 1-locularis, 3 sperma.
1. *Virginica.* Virginia. *Peren.*
2. *Sibirica.* Siberia. *Peren.*
3. *Perfoliata.* North America. *Ann.*
*4. *Cubensis.* Island of Cuba, near the harbou of Batabano. *Ann.* See Humboldt's *Pla* *Equinoct.*
*5. *Caroliniana.* North America. *Peren.*

457. Roridula. *Cor.* 5-petala. *Cal.* 5 phyll *Caps.* 3 valvis. *Antheræ* scrotiformes.
1. *Dentata.* Cape of Good Hope. *Shrub.*

433. Itea. *Petala* longa, calyci inserta. *Caps.* locularis, 2-valvis.
1. *Virginica.* Virginia. *Shrub.*
2. *Cyrilla.* Wet woods in Carolina. *Shrub.*

455. Ægiceras. *Cal.* 5-fidus. *Petala* 5. *Ca* arcuata unilocularis univalvis monosperma.
1. *Majus.* Moluccas and New Holland. *Shr*
2. *Minus.* Moluccas. *Shrub.*

See Brown's *Prodromus*, p. 534.

458. Sauvagesia. *Cor.* 5-petala, fimbriata. *Cal.* 5 phyllus. *Nect.* 5-phyllum, cum petalis alternans. *Caps.* 1-locularis.
1. *Erecta.* Domingo, Jamaica, Surinam, and Guinea. *Ann.*
*2. *Nutans.* Madagascar. (*Aubert.*)

407. Ventilago. *Cal.* tubulosus. *Cor.* squamæ stamina munientes calyci insertæ. *Samara* apice alata monosperma.
1. *Maderaspatana.* Mts. and coasts of India. *Shr.*
*2. *Denticulata.* India near Samulcotta. (Willd. *N. A. Ber.*)

Class V. Pentandria.

2. *Procumbens.* Sea coasts of Cuba. *Shrub.*
3. *Racemosa.* Caribbee Isles. (*Stam.* 10.) *Shr.*

Sect. X. *Flowers Incomplete, Inferior.*

462. Achyranthes. *Cal.* 5-phyllus. *Cor.* 0. *Stigma* 2 fidum. *Sem.* solitaria.

1. *Argentea.* Sicily and Cape of G. Hope. *Per.*
2. *Aspera.* Ceylon and Jamaica. *Shrub.*
3. *Lappacea.* India. *Shrub.*
4. *Echinata.* India. *Shrub.*
5. *Muricata.* Egypt and Arabia. *Ann. Peren.*
6. *Patula.* East Indies. *Shrub.*
7. *Prostrata.* India. *Peren.*
8. *Sarmentosa.* East Indies. *Shrub.*
9. *Prostrata.* East Indies.
10. *Polygonoides.* Arabia Felix and India.
11. *Altissima.* Mountains of Jamaica. *Shrub.*
12. *Nivea.* Canary Isles. *Shrub.*
13. *Stellata.* Guinea. *Shrub.*
14. *Corymbosa.* Ceylon. *Shrub.*
15. *Tenuifolia.* Sierra Leone.
16. *Dichotoma.* Virginia.

* 17. *Porrigens.* *Shrub.*
* 18. *Halimifolia.* Near Lima, and the Antilles. *Peren.* (*Lamarck.*)
* 19. *Amaranthoides.* Java and the Moluccas. *Shrub.* (*Lamarck.*)
* 20. *Ciliata.* East Indies. *Shrub.* (*Lamarck.*)

Persoon ranks under this genus, Sp. 1, 2, 3, 12, 17, 18, of *Illecèbrum*, and Sp. 10 of *Celosia.*

464. Chenolia. *Cal.* 5-partitus. *Cor.* 0. *Styl.* filiformis. *Stigmata* 2 reflexa. *Caps.* umbilicata 1-locularis monosperma.

1. *Diffusa.* Cape of Good Hope.

Persoon ranks this plant under Salsola.

463. Celosia. *Cal.* 3-phyllus, corollæ 5-petalæ facie. *Stam.* basi nectario plicato conjuncta. *Caps.* horizontaliter dehiscens.

1. *Argentea.* China. *Ann.*
2. *Albida.* East Indies. *Ann.*
3. *Margaritacea.* Malabar. *Ann.*
4. *Cristata.* Asia. *Ann.*
5. *Comosa.* East Indies.
6. *Paniculata.* Jamaica. *Ann.*
7. *Nitida.* West Indies.
8. *Coccinea.* India. *Ann.*
9. *Castrensis.* India. *Ann.*
10. *Monsoniæ.* East Indies. Given under *Achyranthes* by Persoon. *Ann.*
11. *Corymbosa.* East Indies. *Peren.*
12. *Caudata.* Arabia Felix.
13. *Trigyna.* Senegal. *Ann.*
14. *Virgata.* *Shrub.*
15. *Polygonoides.* Malabar. *Peren.*
16. *Baccata.* India.
17. *Gnaphaloides.* Monte Video.
18. *Nodiflora.* Ceylon.

* 19. *Elongata.* Sprengel in Schrad. *Bot. Journ.* 1800, p. 196.
* 20. *Glauca.* Cape of Good Hope. *Shrub.*

Sp. 20 may perhaps form a distinct genus.

‡ 465. Illecebrum, or Paronychia. *Cal.* 5-phyllus, cartilagineus. *Cor.* 0. *Stigma* simplex. *Caps.* 3-valvis monosperma.

1. *Brachiatum.* East Indies. *Ann.*
2. *Sanguinolentum.* India. *Peren.*
3. *Lanatum.* India. *Bien.*
4. *Javanicum.* East Indies. *Shrub.*
5. *Verticillatum.* England and other parts of Europe. *Peren.*
6. *Aristatum.* Canary Islands. *Bien.*
7. *Canariense.* Teneriffe. *Shrub.*
8. *Cymosum.* Montpellier, Portugal. *Ann.*
9. *Paronychia.* Spain, Narbonne. *Peren.*
10. *Capitatum.* Narbonne, Spain, and the East. *Peren.*
11. *Divaricatum.* Canaries. *Ann.*
12. *Benghalense.* E. Ind. Bengal, Java, &c. *Ann.*
13. *Arabicum.* Arabia.
14. *Achyrantha.* Buenos Ayres. *Peren.*
15. *Frutescens.* Dry parts of Lima. *Shrub.*
16. *Polygonoides.* Sea shores of America.
17. *Sicoideum.* Sea coasts of America, now in Spain. *Peren.*
18. *Sessile.* East Indies. *Ann.*
19. *Alsinefolium.* Spain.

* 20. *Echinatum.* South of France, Portugal, and Barbary.
* 21. *Italicum.* Italy, and near Marseilles. *Peren.*
* 23. *Narbonnense.* Near Narbonne.
* 24. *Maritimum.* Near Aix. *Peren.*
* 25. *Lugdunense.* *Peren.*
* 26. *Serpyllifolium.* Near Grenoble, Guy, &c.
* 27. *Niveum.* S. of France, and in Spain.
* 28. *Subulatum.* India.
* 29. *Striatum.*
* 30. *Dichotomum*
* 31. *Linearifolium.*

See *Encyc. Bot.* v. p. 25.

466. Glaux. *Cal.* 1 phyllus. *Cor.* 0. *Caps.* 1-locularis, 5-valvis, 5-sperma.

1. *Maritima.* Coasts of Eur. and Amer. *Peren.*

411. Colletia. *Cor.* campanulata plicis 5 squamiformibus instructa. *Cal.* 0. *Fructus* tricoccus.

1. *Horrida.* Brazil. *Shrub.*

* 2. *Obcordata.* Peru. *Shrub.* (Vent. *Il. Cels.*
* 3. *Ephedra.* Peru. *Shrub.* (Vent. *Il. Cels.*)
* 4. *Serratifolia.* Peru. *Shrub.* (Vent. *Il. Cels.*

Sect. XI. *Flowers Incomplete, Superior.*

‡ 469. Thesium. *Cal.* 1-phyllus, cui stamina inserta. *Nux* infera monosperma.

1. *Linophyllum.* England, mountains of Europe and in the East. *Peren.*
2. *Alpinum.* Mountains of Italy, Sweden, Germany, and Siberia. *Ann.*
3. *Humile.* Near Tunis. *Ann.*
4. *Lineatum.*
5. *Squarrosum.*
6. *Frisea.*
7. *Funale.*
8. *Spicatum.*
9. *Capitatum.*
10. *Strictum.*
11. *Umbellatum.*
12. *Fragile.*
13. *Scabrum.*
14. *Paniculatum.*
15. *Amplexicaule.*
16. *Triflorum.*
17. *Euphorbioides.*
18. *Colpoon.*
19. *Spinosum.*

* 20. *Ebracteatum.* Pastures near Berlin.
* 21. *Ramosum.* In the Palatinate.

See Hayne in *Bot. Journ.*

486. Periploca. Contorta. *Nectarium* ambiens genitalia. Filamenta 5-exserens.
1. *Græca.* Syria and Siberia. *Shrub.*
2. *Secamone.* Egypt. *Shrub.*
3. *Lævigata.* Canaries. *Shrub.*
4. *Angustifolia.* Laodicea and Mount Atlas.
5. *Esculenta.* Ceylon and Malabar. *Peren.*
6. *Emetica.* East Indies. See new genus Secamone. *Peren.*
7. *Indica.* Ceylon. *Shrub.*
8. *Capsularis.* New Zealand.
9. *Africana.* Cape of Good Hope. *Shrub.*
10. *Tunicata.* Tranquebar.
11. *Sylvestris.* Woods of Ceylon and Woendel. *Shr.*
*12. *Afzelia.* Sierra Leone.
*13. *Mauritiana.* India.
*14. *Albicans.* East Indies.
*15. *Cordata.* India.
*16. *Parviflora.* India.
*17. *Virgata.* East Indies.

(Sp. 13–17:) See Poiret, *Encycl. Bot.* v. p. 188.

On account of Sp. 12. Mr Brown has slightly modified the character of this genus. See *Wern. Trans.* p. 46.

487. Hostea, or Matelea of Persoon. Contorta. *Cor.* rotata. *Nectar.* stellatum, genitalia tegens. *Folliculi* quinquangulares.
1. *Viridiflora.* Marshy places of Guiana. *Peren.*

488. Apocynum. Contorta. *Cor.* campanulata. *Glandulæ* 5 cum staminibus alterna.
1. *Filiforme.* Cape of Good Hope.
2. *Hastatum.* Cape of Good Hope. *Peren.*
3. *Androsæmifolium.* Virginia, Canada. *Peren.*
4. *Cannabinum.* Canada, Virginia. *Peren.*
5. *Hypericifolium.* North America. *Peren.*
6. *Venetum.* Islands in the Adriatic. *Peren.*
7. *Reticulatum.* Ceylon. *Shrub.*
8. *Floribundum.* In the meadows at the river Surinam in Guiana. *Shrub.*
9. [illegible] Cayenne. *Shrub.*
10. [illegible] India. *Shrub.*
11. [illegible]
12. [illegible]
13. *Triflorum.*
14. *Lineare.*
*15. [illegible] Virginia
*16. [illegible]
*17. [illegible] India.
*18. [illegible] Java.

(Sp. 17, 18:) Lamark, *Encyc.*

Sp. 11–14. Shrubby, and from the Cape. According to Mr Brown, Sp. 3, 4, 5, 6, 15, 16, are the only genuine species with which he is acquainted. See *Wern. Trans.* i. p. 56. Persoon ranks Sp. 7. under the subgenus Quirivela.

489. Pergularia. Contorta. *Nectarium* ambiens genitalia corpusculis 5 sagittatis. *Cal.* hypocrateriformis.
1. *Glabra.* India.
2. *Edulis.* Cape of Good Hope. *Peren.*
3. *Tomentosa.* Arabia. *Shrub.*
4. *Purpurea.* East Indies and China. *Shrub.*
5. *Japonica.* Japan.
*6. *Odoratissima.*
*7. *Minor.*

(Sp. 6, 7:) See Andrew's *Repository*, pp. 184, 185.

Sp. 1 now forms the new genus Vallaris; Sp. 2. probably belongs to another genus; and Sp. 3, 4, may belong to Pergularia. See Brown, *Wern. Trans.* i. 20. The generic character given by Mr Brown is: "Asclepiadeæ. *Massæ pollinis* læves, 10, erectæ. *Antheræ* membrana terminatæ. *Corona staminea* 5-phylla: foliolis compressis apice indivisis, intus lacinula auctis. *Cor.* hypocraterif. tubo urceolato. Andrews refers this genus to Gynandria *Decandria.*

490. Asclepias. Contorta. *Nect.* 5, ovata, concava, corniculum exserentia.

1. *Aphylla.*	4. *Pubescens.*
2. *Undulata.*	5. *Mucronata.*
3. *Crispa.*	

Species 1—5 shrubby, and from the Cape.
6. *Procera.* Persia. *Shrub.*
7. *Gigantea.* East Indies. *Shrub.*
8. *Grandiflora.* Cape of Good Hope.
9. *Carnosa.* China.
10. *Syriaca.* Virginia and Astracan. *Peren.*
11. *Amoena.* North America. *Peren.*
12. *Purpurascens.* Carolina. *Peren.*
13. *Variegata.* North America. *Peren.*
14. *Curassavica.* Curaçoa. *Shrub.*
15. *Nivea.* Virginia, and warm parts of America. *Peren.*
16. *Laniflora.* Arabia Felix. *Shrub.*
17. *Parviflora.* Carolina and Florida. *Peren.*
18. *Incarnata.* Canada and Virginia. *Peren.*
19. *Pulchra.* North America. *Peren.*
20. *Citrifolia.* America. *Peren.*
21. *Decumbens.* Virginia. *Peren.*
22. *Lactifera.* Ceylon. *Peren.*
23. *Vincetoxicum.* Gravelly parts of Europe. *Peren.* See Cynanchum.
24. *Nigra.* Hills of Montpellier. *Peren.*
25. *Fœtida.* Mexico. *Peren.*
26. *Convolvulacea.* Guinea. *Peren.*
27. *Volubilis.* Ceylon. *Shrub.*
28. *Alexicaca.* Ceylon. *Peren.*
29. *Asthmatica.* Woods of Ceylon. *Peren.*
30. *Viminalis.* Jamaica. *Peren.*
31. *Arborescens.* Cape of Good Hope. *Shrub.* See Gomphocarpus.
32. *Fruticosa.* Cape of Good Hope. *Shrub.* See Gomphocarpus.
33. *Sibirica.* Siberia. *Peren.*
34. *Davurica.* Dauria. *Peren.*
35. *Setosa.* Arabia Felix. *Shrub.* See Gomphocarpus.
36. *Filiformis.* Cape of Good Hope.
37. *Verticillata.* Virginia. *Peren.*
38. *Mexicana.* Mexico. *Bien.*
39. *Linaria.* *Peren.*
40. *Rubra.* Virginia.
41. *Tuberosa.* North America. *Peren.*
*42. *Obtusifolia.* From Virginia to Carolina.
*43. *Hybrida.* Carolina.
*44. *Amplexicaulis.* Dry pastures of Georgia.
*45. *Humistrata.* Carolina.
*46. *Debilis.* Wet parts of Carolina.
*47. *Laurifolia.*
*48. *Paupercula.*

(Sp. 42–48:) See Michaux, *Flor. Amer.* i. p. 115.

*49. *Graminea.* India. (*Lamarck.*)
*50. *Longifolia.* Woods of West Georgia. (*Michaux.*)

* 51. *Floridana.* Florida. (*Lamarck.*)

This genus has been separated into many new genera by Mr R. Brown. See *Wern. Trans.* p. 1. and the new genera at the end of this class. The species 10, 11, 12, 13, 15. 17, 18, 19, 20, 21, 37, 38, 39, 40, 41, along with some unpublished species in the *Banksian Herbarum*, belong to the genus ASCLEPIAS, of which Mr Brown has given the following generic character: " Asclepiadea. *Massæ pollinis* læves, 10, pendulæ. *Corona staminea* simplex, 5-phylla: foliolis cucullatis, e fundo exserentibus processum aversum corniformem. *Cor.* reflexa. *Folliculi* læves."

493. CEROPEGIA. Contorta. *Folliculi* 2 erecti. *Semina* plumosa. *Corollæ* limbus connivens.

1. *Candelabrum.* Malabar. *Peren.*
2. *Tuberosa.* Uncultivated parts of India. *Per.*
3. *Bulbosa.* Dry groves of India. *Peren.*
4. *Biflora.* Ceylon. *Peren.*
5. *Juncea.* Uncultivated parts of India. *Per.*
6. *Acuminata.* India. *Peren.*
7. *Sagittata.* Cape of Good Hope. *Peren.*
8. *Tenuiflora.* Cape of Good Hope. *Peren.*

See the genus MICROLOMA.

492. MELODINUS. Contorta. *Bacca* bilocularis polysperma. *Faux* corollæ coronata.

1. *Scandens.* New Caledonia. *Shrub.*

‡ 511. SWERTIA. *Cor.* rotata. *Nectariferi* pori ad basin laciniarum corollæ. *Caps.* unilocularis, 2-valvis.

1. *Perennis.* England, Switzerland, Bavaria, Silesia, Austria, and France. *Peren.*
2. *Difformis.* Virginia.
3. *Decumbens.* Arabia Felix.
4. *Corniculata.* Siberia and Canada. *Ann.*
5. *Dichotoma.* Siberia. *Ann.*
6. *Tetrapetala.* Kamschatka. *Ann.*

* 7. *Umbellata.* Andes. *Ann.* (*Flor. Peruv.*)

Persoon ranks species 4, 7, under the subgenus CERATIA.

‡ 512. GENTIANA. *Cor.* 1-petala. *Caps.* 2-valvis, 1-locularis; receptaculis 2. longitudinalibus.

1. *Lutea.* Mountains of Switzerland, Austria, the Appenines, the Pyrenees, &c. *Peren.*
2. *Purpurea.* Mountains of Switzerland, Savoy, the Pyrenees, and in Norway. *Peren.*
3. *Pannonica.* The Pyrenees, Tyrol, Bavaria, Carinthia, Stiria, Austria, and Bohemia. *Per.*
4. *Punctata.* Switzerland, Austria, Styria, the Tyrol, and the Rhætian Alps. *Peren.*
5. *Campanulata.* Mount Garten in Carinthia.
6. *Septemfida.* Mountains of Persia near the Caspian Sea, &c. *Peren.*
7. *Asclepiadea.* Mountains in the south of Hungary, and in Switzerland, Austria, Siberia, Italy. Spain, &c. *Peren.*
8. *Montana.* New Zealand, and Van Diemen's Island.
9. *Cruciata.* Spain, Switzerland, Germany, and Austria. *Peren.*
10. *Macrophylla.* Siberia. *Peren.*
11. *Adscendens.* Siberia. *Peren.*
12. *Pneumonanthe.* England and other parts of Europe. *Peren.*
13. *Triflora.* Eastern parts of Siberia. *Peren*
14. *Frigida.* Tops of the Carpathian and Stirian mountains. *Peren.*
15. *Algida.* Mountains at the R. Jenisey, at Lake Baikal, and in Kamschatka. *Peren.*
16. *Saxosa.* Rocky coast of New Zealand. *Per.*
17. *Saponaria.* Virginia and Pennsylvania. *Per.*
18. *Ochroleuca.* Virginia and Carolina. *Peren.*
19. *Villosa.* Virginia. *Peren.*
20. *Linearis.* Valleys of Pennsylvania. *Peren.*
21. *Quinqueflora.* Pennsylvania and Carolina. *Ann.*
22. *Aurea.* Lapland, Norway, and Iceland. *An.*
23. *Glauca.* Tops of mountains in Kamschatka and in the island of Bhering. *Peren.*
24. *Exaltata.* America. *Ann.*
25. *Acaulis*, or *Grandiflora.* Mountains of Switzerland, Austria, Bavaria, France, Italy, and the Pyrenees. *Peren.*
26. *Altaica.* Top of the Altaian Mountains in Siberia, beside the snow. *Peren.*
27. *Pyrenaica.* Pyrenees. *Peren.*
28. *Verna.* Mountains of England and Ireland, Switzerland, Austria, the Pyrenees, the Carpathean Mountains, Tyrol, Lake Baikal. *Ann.*
29. *Utriculosa.* Austria, Carniola, Bavaria, the Palatinate, Switzerland, Italy, and France. *An.*
30. *Bavarica.* Mountains of Switzerland, Bavaria, Sweden, and Austria. *Peren.*
31. *Imbricata.* Mountains of Switzerland and Carinthia. *Peren.*
32. *Prostrata.* Mountains of Salzburg. *Peren.*
33. *Niwalis.* Benlawers in Scotland, mountains of Lapland, Switzerland, Tyrol, Carinthia, Austria, and the Pyrenees. *Ann.*
34. *Pumila.* Mountains of Austria, Carinthia, Tyrol, and Switzerland. *Peren.*
35. *Aquatica.* Siberia, Japan, and China. *Ann.*
36. *Scilloides.* Azores Isles.
37. *Uniflora.* Sudetes Mts. and Bavaria. *Ann.*
38. *Germanica*, or *Amarella.* Meadows of Europe. *Ann.*
39. *Amarella*, or *Lancifolia.* England, Sweden, and in Bohemia. *Ann.*
40. *Obtusifolia.* Mts. in Bavaria and Sweden. *An.*
41. *Uliginosa.* Germany. *Ann.*
42. *Pratensis.* Russia and Siberia, and Lake Baikal. *Ann.*
43. *Campestris.* England, Sweden, Denmark, Norway, Germany, Italy, and Naples. *Ann.*
44. *Auriculata.* Siberia and Kamschatka, also in the islands between Asia and America. *Ann.*
45. *Tenella.* Mts. of Norway, also in Iceland. *An.*
46. *Glacialis.* Tops of the mountains of the Vallais, Carinthia, and Salzburgh. *Ann.*
47. *Dichotoma.* Siberia, at the river Lena, to the Eastern Ocean. *Ann.*
48. *Nana.* Carinthia and Salzburgh. *Ann.*
49. *Carinthiaca* Carinthia and Salzburgh. *An.*
50. *Sulcata.* Iceland. *Ann.*
51. *Rotata.* Siberia. *Ann.*
52. *Ciliata.* Mts. of Germany, Austria, Carniola, Switzerland, Spain, and Italy. *Peren.*
53. *Crinita.* New York, Pennsylvania, and Carolina.

54. *Barbata.* Siberia and Mt. Caucasus. *Bien.*
55. *Detonsa.* Norway and Iceland.
56. *Serrata.* Pastures of Nordland and Iceland.
* 57. *Viscosa.* Canary Isles. *Shrub.*
* 58. *Caucasea.* Mount Caucasus. *Per.*
Bot.Mag. 1038.
* 59. *Catesbæi.* North America. *Peren.* (Andrew's *Rep.* 418.)
* 60. *Longiflora.* Siberia. (*Lamarck.*)
* 61. *Amarelloides.* Kentucky. (*Michaux.*)

Species 57. is the *Exacum viscosum* of Willdenow. (See Brown's *Prodr.* p. 450.)

502. CRESSA. *Cal.* 5-phyllus. *Cor.* hypocrateriformis. *Filam.* tubo insidentia. *Caps.* 2-valvis, 1 seu 4-sperma.
1. *Cretica.* Salt shores of Candia, Rome.
2. *Indica.* Salt lakes in India. *Ann.*
* 3. *Australis.* New Holland. (Brown's *Prod.* p. 490.)

506. NAMA. *Cal.* 5-phyllus. *Cor.* 5-partita. *Caps.* 1-locularis 2 valvis.
1. *Jamaicensis.* Stony parts of Jamaica. *Ann.*

507. HYDROLEA. *Cal.* 5-phyllus. *Cor.* rotata. *Filamenta* basi cordata. *Caps.* 2-locularis 2-valvis.
1. *Spinosa.* South America. *Shrub.*
2. *Trigyna.* Near Vera Cruz in S. Amer. *Shr.*
3. *Zeylanica.* East Indies. *Ann.*
* 4. *Caroliniana.* Stagnant waters of Carolina. (*Michaux.*)
* 5. *Urens.* Warm parts of Peru.
* 6. *Crispa.* At the river Pozuzo in the Andes.
* 7. *Dichotoma.* Near Huanuco in Peru.
See *Fl. Peruv.* iii. p. 21.

508. ROCHEFORTIA. *Cal.* 5-partit. *Cor.* infundibulif. fauce aperta. *Fructus* 2-locul. polyspermus.
1. *Cuneata.* Stony mountains of Jamaica. *Shr.*
2. *Ovata.* Stony places in Jamaica. *Shrub.*

513. DICHONDRA. *Cal.* 5-partit. *Cor.* rotata 5-partita. *Capsulæ* 2-monospermæ.
1. *Repens.* New Granada, New Zealand, and New Holland.
2. *Sericea.* Island of Mauritius. *Peren.*
* 3. *Carolinensis.* Carolina. (*Michaux.*)

See Brown's *Prodromus*, p. 490.

SECT. II. *Flowers with five Petals, Inferior.*

510. VELEZIA. *Cor.* 5-petala, parva. *Cal.* filiformis 5-dentatus. *Caps.* 1-locularis. *Sem.* plurima, serie simplici. (*Stam.* 5-6.)
1. *Rigida.* Spain and Barbary. *Ann.*

495. LINCONIA. *Petala* 5: foveolis nectarii basi insculpta. *Caps.* seminifera, 2-locularis.
1. *Alopecuroidea.* Wet mountains of the Cape of Good Hope. *Shrub.*
* 2. *Peruviana.* Peru. (*Lamarck.*)

515. BUMALDA. *Cal.* 5-partit. *Cor.* 5-petala. *Styli* villosi. *Caps.* 2 locul. 2-rostris.
1. *Trifolia.* Mountains of Japan. *Shrub.*

509. HEUCHERA. *Petala* 5. *Caps.* 2-rostris, 2-locularis.
1. *Americana.* Virginia. *Peren.*
* 2. *Villosa.* Lower Carolina. (*Michaux.*)

501. ANABASIS. *Cal.* 3-phyllus. *Cor.* 5-petala. *Bacca* 1-sperma. *Calyce* cincta.
1. *Aphylla.* At the Caspian Sea, and about Tripoli. *Shrub.*
2. *Cretacea.* Siberia. *Peren.*
3. *Foliosa.* At the Caspian. *Ann.*
4. *Spinosissima.* Alexandria and Persia. Given by Persoon under *Salsola.*
5. *Tamariscifolia.* Spain. *Shrub.*

SECT. III. *Flowers Incomplete.*

‡ 500. SALSOLA. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 1-sperma. *Sem.* cochleatum.
1. *Kali.* Coasts of England and other parts of Europe. *Ann.*
2. *Tragus.* South of Europe. *Ann.*
3. *Rosacea.* North of Asia. *Ann.*
4. *Soda.* Salt parts in the south of Europe. *An.*
5. *Sativa.* South coasts of Spain. *Ann.*
6. *Spicata.* Spain. *Ann.*
7. *Altissima.* Italy, Saxony, and Astracan. *An.*
8. *Trigyna.* Spain. *Ann.*
9. *Salsa.* Astracan. *Ann.*
10. *Nudiflora.* Near Tranquebar on the coast. *Per.*
11. *Flavescens.* Mountains of Spain. *Peren.*
12. *Hirsuta.* Denmark, sea coasts of Montpellier. *Ann.*
13. *Laniflora.* Siberia about Saratschik.
14. *Hyssopifolia.* Saline fields in Siberia. *Ann.*
15. *Polyclonos.* Sicily and sea coasts of Spain.
16. *Prostrata.* North of Asia, Spain, Austria, Switzerland, Siberia. *Shrub.*
17. *Monandra.* Siberia at lake Altan. *Ann.*
18. *Vermiculata.* Spain, Siberia. *Shrub.*
19. *Arbuscula.* Desarts of Tartary at the salt lake Inderien. *Shrub.*
20. *Aphylla.* Cape of Good Hope. *Shrub.*
21. *Arborescens.* Siberia. *Shrub.*
22. *Fruticosa.* Coasts of England, France, Spain, and Persia. *Shrub.*
23. *Indica.* East Indies. *Shrub.*
24. *Sedoides.* Siberia at Samara. *Peren.*
25. *Muricata.* S. of Europe, and Egypt. *Shrub.*
* 26. *Caroliniana.* Coasts of Carolina. (*Michaux.*)
* 27. *Arenaria.* On the Rhine in the S. of Germany.
* 28. *Canescens.*
* 29. *Camphorosmoides.* Near Tlemsen. *Shrub.*
* 30. *Brevifolia.* Near Cafsa.
* 31. *Mollis.* Near Cafsa.
* 32. *Oppositifolia.* Tunis.
See Desf. *Flor. Atl.* 1. p. 218.
* 33. *Verticillata.* Near Magadore. (*Schousboe.*)
* 34. *Glauca.* Mts. near Kuba. (*Bieberstein.*)
* 35. *Platyphylla.* South America. (*Michaux.*)
* 36. *Australis.* New South Wales.
* 37. *Macrophylla.* New Holland.
Brown's *Prodr.*

See Brown's *Prodromus*, p. 411.

‡ 497. CHENOPODIUM. *Cal.* 5-phyllus, 5-gonus. *Cor.* 0. *Sem.* 1, unticulare, superum.
1. *Bonus Henricus.* England and other parts of Europe. *Peren.*
2. *Mucronatum.* Cape of Good Hope.
3. *Triandrum.* New Zealand.
4. *Urbicum.* Engl. and other parts of Eur. *Ann.*
5. *Atriplicis.* China. *Ann.*
6. *Rubrum.* Engl. and other parts of Eur. *Ann.*

7. *Guineense.* Guinea. *Ann.*
8. *Murale.* England, Europe, and Algiers. *Ann.*
9. *Quinoa.* Chili. *Ann.*
10. *Serotinum.* England, Spain, France, and Siberia. *Ann.*
11. *Album.* Eng. and other parts of Eur. *Ann.*
12. *Viride.* Europe.
13. *Hybridum.* Engl. and other parts of Eur. *Ann.*
14. *Botrys.* Sandy parts south of Europe. *Ann.*
15. *Ambrosioides.* Mexico and Portugal. *Ann.*
16. *Multifidum.* Buenos Ayres. *Shrub.*
17. *Anthelminticum.* Pennsylvania and Buenos Ayres. *Shrub.*
18. *Glaucum.* Engl. and other parts of Eur. *Ann.*
19. *Vulvaria*, or *olidum.* England and other parts of Europe. *Ann.*
20. *Polyspermum.* England and other parts of Europe. *Ann.*
21. *Caudatum.* Guinea. *Ann.*
22. *Laterale.* *Ann.*
23. *Scoparium.* Greece, Japan, China, Carniola. *Ann.*
24. *Maritimum.* Engl. and other pts. of Eur. *Ann.*
25. *Oppositifolium.* Siberia near Jaik.
26. *Aristatum.* Siberia and Virginia. *Ann.*

* 27. *Acutifolium.* England and Switzerland. *Ann.*
* 28. *Villosum.* *Ann.*
* 29. *Triangulare.*
* 30. *Erosum.*
* 31. *Lanceolatum.*
* 32. *Ambiguum.*
* 33. *Australe.*
* 34. *Carinatum.*
* 35. *Pumilio.*

Sp. 29—35 natives of New Holland and Van Diemen's Island.

* 36. *Ficifolium.* England. *Ann.*
* 37. *Punctulatum.*
* 38. *Acuminatum.* Siberia. (Willd. *N. A. Berol.*)

The character of this genus, as reformed by Mr Brown, by whom the last 7 species are given, is—"*Perianth.* 5-partitum, (nunc 3-4-part.) *Stamina* totidem vel pauciora. *Stylus* 2-4-fidus. *Utriculus* membranaceus, depressus, perianthio haud mutato tectus. *Semen* integumento duplici, exteriori crustaceo." See *Prodr.* p. 406.

‡ 498. BETA. *Cal.* 5-phyllus. *Cor.* 0. *Sem.* reniforme, intra substantiam baseos calycis.

1. *Vulgaris.* Europe. *Bien.*
2. *Patula.* Madeira. *Bien.*
3. *Cicla.* Portugal at the river Tagus. *Bien.*
4. *Maritima.* England, shores of France. *Bien.*

* 5. *Trigyna.* Hungary. *Peren.*

‡ 496. HERNIARIA. *Cal.* 5-partitus. *Cor.* 0. *Stamina* 5, sterilia. *Caps.* monosperma.

1. *Glabra.* Engl. and other parts of Eur. *Ann.*
2. *Hirsuta.* Sandy parts of England, Germany, Switzerland, and Italy. *Ann.*
3. *Alpina.* Mountains of Dauphiny. *Peren.*
4. *Fruticosa.* Spain. *Shrub.*
5. *Lenticulata*, or *Incana.* Mountains of Spain, Montpellier, and the E. Indies. *Shrub.*
6. *Polygonoides.* Spain. *Shrub.*

503. GOMPHRENA. *Cal.* coloratus: exterior 3-phyllus: foliolis 2 conniventibus carinatis. *Petala* 5, rudia, villosa. *Nectarium* cylindricum, 5-dentatum. *Caps.* 1-sperma. *Stylus* semibifidus.

1. *Globosa.* India. *Ann.*
2. *Perennis.* Buenos Ayres. *Peren.*
3. *Hispida.* Malabar.
4. *Angustifolia.* East Indies.
5. *Vermicularis.* Warm parts of America. *Per.*
6. *Brasiliensis.* Brasil. *Shrub.*
7. *Serrata.* America.
8. *Interrupta.* South of Jamaica. *Ann.*
9. *Flava.* Vera Cruz.
10. *Arborescens.* New Granada. *Shrub.*

504. BOSEA. *Cal.* 5-phyllus. *Cor.* 0. *Bacca* 1-sperma.

1. *Yervamora.* Canary Isles. *Shrub.*

‡ 505. ULMUS. *Cal.* 5-fidus. *Cor.* 0. *Samara* compresso-membranacea. (*Stam.* 4 et 8.)

1. *Campestris.* Engl. and other parts of Eur. *Shr.*
2. *Suberosa.* Europe. *Shrub.*
3. *Effusa*, or *montana.* Britain and other parts of Europe. *Shrub.*
4. *Americana.* Virginia. *Shrub.*
5. *Nemoralis.* North America. *Shrub.*
6. *Pumila.* Siberia. *Shrub.*
7. *Integrifolia.* Mts. in the E. Indies. *Shrub.*

* 8. *Alata.* Virginia and Low. Carol. } Mich. *Flor.*
* 9. *Fulva.* Alleghany mountains. } *Am.* p. 173.
* 10. *Chinensis.* China. *Shrub.*

499. MICROTEA. *Cal.* 5-phyll. patens. *Cor.* 0. *Drupa* sicca echinata.

1. *Debilis.* Caribbees, Grenada, St Eustachius, and Guadaloupe. *Ann.*

SECT. IV. *Flowers with five Petals, Superior, Capsular.*

514. VAHLIA. *Cal.* 5-phyll. *Cor.* 5-petala. *Caps.* infera 1-locul. polysperma.

1. *Capensis.* Cape of Good Hope. *Peren.*

SECT. V. *Flowers with five Petals, Superior, with two Seeds, Umbellated.*

1. *With an universal and partial Involucrum.*

516. PHYLLIS. *Stigmata* hispida. *Cal.* 2-phyllus. *Cor.* 5-petala. *Sem.* 2.

1. *Nobla.* Canary Isles. *Shrub.*

‡ 518. ERYNGIUM. *Flores* capitati. *Recept.* paleaceo.

1. *Fœtidum.* Virginia, Jamaica, Mexico, and Surinam. *Peren.*
2. *Aquaticum.* Virginia. *Peren.*
3. *Planum.* Russia, Poland, Austria. *Peren.*
4. *Pusillum.* Spain and the East. *Peren.*
5. *Tricuspidatum.* Spain, Sicily, and the E. *Bien.*
6. *Maritimum.* Coasts of Engl. and Eur. *Peren.*
7. *Campestre.* England, Germany, France, Spain, and Italy. *Peren.*
8. *Amethystinum.* Mts. of Styria. *Peren.*
9. *Triquetrum.* Barren fields kingdom of Tunis.
10. *Alpinum.* Mountains of Switzerland, Italy, and Carinthia. *Peren.*
11. *Bourgati.* Mountains in the south of France, and in Greece. *Peren.*

* 12. *Rostratum.* Chili, near Talcahuano. } Cavanilles,
* 13. *Monocephalum.* Mexico. } *Icones*, vi. p. 34.
* 14. *Rigidum.* Mts. of France. (*Lamarck.*)
* 15. *Cæruleum.* West of the Caspian. *Peren.* (*Bieberstein.*)

Class V. Pentandria.

*16. _Ilicifolium._ Barbary and Portugal. (_Cavanilles._)
*17. _Dichotomum._ Hills near Mascar. (_Desfont._)
*18. _Corniculatum._ Portugal.
*19. _Creticum._ Candia.
*20. _Glomeratum._ In the East.
*21. _Dilatatum._ Portugal and Barbary.
*22. _Lateriflorum._ In the East.
*23. _Virgatum._
*24. _Galioides._ Wet parts of Portugal.
See Lamarck, _Encycl. Method._
*25. _Tenue._ Hills of Spain and Barbary. (_Desfont._)
*26. _Odoratum._ Wet parts of Portugal. (_Lamarck._)
*27. _Serratum._ Mexico.
*28. _Humile._ Quito.
*29. _Subacaule._ New Spain.
See Cavanilles, _Icones_, vi. p. 36.
*30. _Ovalifolium._ Wet parts of Carolina. (_Michaux._)
*31. _Nudicaule._ Monte Video. (_Lamarck._)
*32. _Virginianum._ Virginia and Carolina. (_Lamarck._)
*33. _Longifolium._ Mexico. (_Cavanilles._)
*34. _Ebracteatum._ Paraguay, Monte Video, and Buenos Ayres. (_Lamarck._)

‡ 519. HYDROCOTYLE. _Umbella_ simplex. _Involucro_ 4-phyllo. _Petala_ integra. _Sem._ semiorbiculato-compressa.

1. _Vulgaris._ Wet parts of England and Europe, also in Jamaica. _Peren._
2. _Umbellata._ Wet parts of America.
3. _Bonariensis._ Buenos Ayres near Monte Video.
4. _Americana._ North and South America, also in the East Indies.
5. _Hirsuta._ Woody mts. of Hispaniola. _Peren._
6. _Moschata._ New Zealand.
7. _Asiatica._ East Indies. _Peren._
8. _Erecta._ Jamaica.
9. _Villosa._ Cape of Good Hope.
10. _Glabrata._ Cape of Good Hope.
11. _Spananthe._ About the Caraccas. _Ann._
12. _Ranunculoides._ Mexico.
13. _Saniculæfolia._ Buenos Ayres.
14. _Solandra._ Cape of Good Hope. _Shrub._
15. _Tridentata._ Cape of Good Hope.
16. _Chinensis._ China.
17. _Linifolia._ Cape of Good Hope.
18. _Virgata._ Cape of Good Hope.
*19. _Natans._ *20. _Tribotrys._
*21. _Triflora._ Wet pts. of Chili.
*22. _Globiflora._ Groves of Peru, near Munna. _Peren._
*23. _Gracilis._ Peru. _Peren._
*24. _Quinqueloba._ Groves of Peru. _Ann._
*25. _Citriodora._ Chili.
*26. _Incrassata._ Shady parts of Peru.
*27. _Acutifolia._ Shady parts of Peru.
See _Flor. Peruv._ iii. p. 245.
*28. _Sibthorpioides._ Mauritius.
*29. _Ficarioides._ Mauritius.
Lamarck. _Encyc._
*30. _Repanda._ Lower Carolina. (_Michaux._)
*31. _Triloba._ Cape of Good Hope.
*32. _Lineata._ Lower Carolina. (_Michaux._)
*33. _Inundatum._ England. (The _Sison inundatum_ of Willdenow.)

Species 15, 31, are probably species of AZORELLA.
Species 16, 17, 18, are perhaps not different.

520. AZORELLA. _Petala_ 5, ovato-oblonga obtusa. _Fructus_ subglobosus striatus calyce persistenti coronatus. _Involucrum_ 3-5-phyllum. _Umbella_ simplex.

1. _Filamentosa_, or _Chamitis._ Terra del Fuego. _Peren._
2. _Cespitosa_, or _Trifurcata._ Straits of Magellan, and the Maclovian Isles. _Peren._
*3. _Linarifolia._ New South Wales.
*4. _Crassifolia._ Mountains of Chili.
Cavanilles, _Icones._
*5. _Corymbosa._ Peruvian Alps.
*6. _Spinosa._ Dry parts of Chili.
*7. _Multifida._ Andes.
*8. _Crenata._ Cold hills of Peru.
*9. _Cladorhiza._ Cold hills of Peru.
*10. _Reniformis._ Shady parts of Peru.
See _Flor. Peruv._ iii. p. 27. t. 250.

517. CUSSONIA. _Pet._ 5, trigona. Margo receptaculi dilatatus in calycem 5-dentatum. _Fructus_ compressus didymus angulatus calyce stylisque coronatus.

1. _Thyrsiflora_, or _Thyrsoidea._ Cape of Good Hope. _Shrub._
2. _Spicata._ Cape of Good Hope. _Shrub._

‡ 521. SANICULA. _Umbellæ_ confertæ, subcapitatæ. _Fructus_ scaber. _Flores_ disci abortientes.

1. _Europæa._ Groves of England and Europe. _Peren._
2. _Canadensis._ Virginia. _Peren._
3. _Marilandica._ Maryland and Virginia. _Peren._
*4. _Crithmifolia._ (_Artedia squamata_ of Pallas. See Willd. _N. A. Ber._)

522. ASTRANTIA. _Involucra_ partialia lanceolata, patentia, æqualia, longiora, colorata. _Flores_ plurimi abortientes.

1. _Epipactis._ Woody mountains of Carinthia, Carniola, Croatia, and south of Hungary. _Peren._
2. _Major._ Mountains of Switzerland, Tuscany, Bohemia, and the Pyrenees. _Peren._
3. _Carniolica._ Carniola and Carinthia. _Peren._
4. _Minor._ Switzerland and the Pyrenees. _Per._
5. _Ciliaris._ Cape of Good Hope. _Peren._
*6. _Helleborifolia._ Mount Caucasus. _Peren._ (Salisb. _Parad._ 60.)
*7. _Heterophylla._ Siberia. (Willd. _N. A. Ber._)

‡ 541. HERACLEUM. _Fructus_, ellipticus, emarginatus, compressus, striatus, marginatus. _Cor._ difformis, inflexo-emarginata. _Involucrum_ caducum.

1. _Sphondylium._ England and other parts of Europe. _Bien._
2. _Flavescens._ Austria. _Peren._
3. _Angustifolium._ England and Sweden. _Per._
4. _Elegans._ Austria. _Peren._
5. _Sibiricum._ Siberia. _Bien._
6. _Panaces._ Appennines and Siberia. _Bien._
7. _Tuberosum._ Sandy hills of Chili. _Peren._
8. _Austriacum._ Mountains of Austria. _Peren._
9. _Alpinum._ Mountains of Switzerland. _Peren._
10. _Pumilum._ Mountains of Dauphiny. _Peren._
*11. _Lanatum._ Canada. (Michaux, _Flor. Amer._ i. p. 166.)

‡ 548. OENANTHE. _Flosculi_ difformes; in disco sessiles, steriles. _Fructus_ calyce et pistillo coronatus.

1. _Fistulosa._ Marshy places of England and other parts of Europe. _Peren._

Class V. Pentandria.

10. *Nodosum.* Candia.
11. *Geniculatum.* New Zealand.
* 12. *Arenarium.* At Pest in Hungary.
* 13. *Italicum.* (*Persoon.*)
* 14. *Serotinum.* (*Encyc. Bot.*)

531. AMMI. *Involucra* pinnatifida. *Corollæ* radiatæ: omnes hermaphroditæ. *Fructus* lævis.
1. *Majus.* South of Europe. *Ann.*
2. *Copticum.* Egypt. *Ann.*
3. *Glaucifolium.* France. *Peren.*
4. *Daucifolium.* Pyrenees and Carniola. *Peren.*
* 5. *Meoides.* In the East. (*Lamarck.*)
* 6. *Divaricatum.* North America. (Walt. *Flor. Car.*)
* 7. *Capillaceum.* Carolina. (*Michaux.*)

526. HASSELQUISTIA. *Cor.* radiatæ: disci masculæ. *Sem.* ambitus geminata, margine crenata, disci solitaria, urceolata, hemisphærica.
1. *Ægyptiaca.* Arabia and Egypt. *Ann.*
2. *Cordata.* *Ann.*

‡ 533. CONIUM. *Involucella* dimidiata, subtriphylla. *Fructus* subglobosus, 5-striatus, utrinque crenatus.
1. *Maculatum.* England, and other parts of Europe. *Bien.*
2. *Rugosum.* Cape of Good Hope.
3. *Rigens.* Cape of Good Hope. *Shrub.*
4. *Africanum.* Africa. *Ann.*
* 5. *Dichotomum.* Near Mascar. (*Desfont.*)

524. EXOACANTHA. *Involucrum* spinosum. *Involucella* dimidiata. *Flores* omnes hermaphroditi æquales. *Sem.* 2 ovata striata inde plana.
1. *Heterophylla.* Near Nazareth. *Bien.*

‡ 532. BUNIUM. *Cor.* uniformis. *Umbella* conferta. *Fructus* ovati.
1. *Bulbocastanum.* England, Germany, Switzerland, and France. *Peren.*
2. *Majus.* France. *Peren.*
3. *Aromaticum.* Candia and Syria. *Ann.*
* 4. *Flexuosum.* England. *Peren.* (A variety of species 2. in Persoon.)

‡ 535. ATHAMANTA. *Fructus* ovato-oblongus, striatus. *Pet.* inflexa emarginata.
1. *Libanotis.* England, Gemany, and Sweden. *Peren.*
2. *Cervaria.* Germany, Switzerland, France, and Austria. *Peren.*
3. *Sibirica.* Siberia. *Shrub.*
4. *Condensata.* Siberia. *Shrub.*
5. *Incana.* Siberia.
6. *Oreosolinum.* Germany, France, and England. *Peren.* (Perhaps the same as species 1.)
7. *Sicula.* Sicily. *Peren.*
8. *Matthioli.* Rocky places of Croatia and Carniola. *Peren.*
9. *Cretensis.* Switzerland, Austria, and Carniola. *Peren.*
10. *Annua.* Candia. *Ann.*
11. *Chinensis.*

‡ 523. BUPLEURUM. *Involucra* umbellulæ majora, 5-phylla. *Petala* involuta. *Fructus* subrotundus, compressus, striatus.
1. *Rotundifolium.* Engl. and S. of Eur. *Ann.*
2. *Stellatum.* Mountains of Switzerland. *Ann.*
3. *Petræum.*
4. *Graminifolium.* Mountains of France, Italy, Carinthia. *Peren.*
5. *Angulosum.* Pyrenees and the Vallais. *Per.*
6. *Pyrenæicum.* Pyrenees. *Ann.*
7. *Longifolium.* Germany, Thuringia, Mount Jura in Switzerland. *Peren.*
8. *Falcatum.* Germany, Misnia, and the Vallais. *Peren.*
9. *Caricifolium.* Mountains of Dauphiny and the Vallais. *Peren.*
10. *Odontites.* Italy and the Vallais. *Ann.*
11. *Semicompositum.* Spain and Montpellier. *Ann.*
12. *Ranunculoides.* Switzerl. and Pyrenees. *Per.*
13. *Rigidum.* Montpellier. *Peren.*
14. *Tenuissimum.* Engl. Germ. Fran. Italy. *Ann.*
15. *Baldense.* Croatia, Carniola, Mt. Baldo. *Per.*
16. *Gerardi.* France, Italy, the Palatinate, and Austria. *Ann.*
17. *Junceum.* France, Italy, Switzerl. Germ. *Ann.*
18. *Nudum.* Cape of Good Hope. *Peren.*
19. *Arborescens.* Cape of Good Hope. *Shrub.*
20. *Fruticosum.* S. of France, and the East. *Shr.*
21. *Coriaceum,* or *Gibraltaricum.* Spain near Gibraltar. *Shrub.*
22. *Fruticescens.* Hills of Spain. *Shrub.*
23. *Spinosum.* Spain. *Shrub.*
24. *Difforme.* Cape of Good Hope. *Shrub.*
* 25. *Exaltatum.* Crimea. (*Bieberstein.*)
* 26. *Procumbens.* Near Tunis. } Desfont.
* 27. *Plantagineum.* Atlas near Bongie. } *Fl. Atl.*
* 28. *Canescens.* Near Mogadore. (*Schousboe.*)

‡ 544. SIUM. *Fructus* subovatus, striatus. *Involucrum* polyphyllum. *Petala* cordata.
1. *Filifolium.* Cape of Good Hope.
2. *Latifolium.* Engl. and other pts. of Eur. *Per.*
3. *Angustifolium.* England and other parts of Europe. *Peren.*
4. *Nodiflorum.* Engl. and other parts of Europe.
5. *Repens.* England, Bohemia, and banks of the Danube. *Peren.*
6. *Sisarum.* China. *Peren.*
7. *Rigidius.* Virginia.
8. *Japonicum.* Japan.
9. *Falcaria.* Flanders, Carniola, Germany, Austria, Switzerland, Bohemia, Alsace, France, and in the East. *Peren.*
10. *Grandiflorum.* Cape of Good Hope.
11. *Paniculatum.* Cape of Good Hope.
12. *Patulum.* Cape of Good Hope.
13. *Græcum.* Greece.
14. *Decumbens.* Japan.
15. *Siculum.* Sicily. *Peren.*
16. *Asperum.* 17. *Hispidum.* 18. *Villosum.* Sp. 16—18 from the Cape of Good Hope.
* 19. *Lineare.* Wet parts of Canada. (*Michaux.*)
* 20. *Verticillatum.* England. (The *Sison verticillatum* of Smith.)

‡ 534. SELINUM. *Fructus* ovali-oblongus, compresso-planus, in medio striatus. *Involucrum* reflexum. *Petala* cordata, æqualia.
1. *Sylvestre.* France and Germany. *Peren.*
2. *Palustre.* Marshes of England and north of Europe. *Peren.*
3. *Austriacum.* Mountains of Austria, Italy, and France. *Peren.*
4. *Sibiricum.* Siberia. *Bien.*
5. *Carvifolia.* Germany, Switzerland, Siberia, and Austria. *Peren.*
6. *Chabræi.* In the groves of Germany, France, and Italy. *Peren.*
7. *Seguieri.* Italy and Carniola. *Peren.*
8. *Monnieri.* South of France. *Ann.*

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‡ 554. CHAEROPHYLLUM. *Involuc.* reflexum, concavum. *Petala* inflexo-cordata. *Fructus* oblongus lævis.
1. *Sylvestre.* Engl. and other pts. of Eur. *Per.*
2. *Bulbosum.* Germany, Hungary, Switzerland, and Norway. *Bien.*
3. *Aristatum.* Japan.
4. *Temulentum.* Engl. and other pts. of Eur. *Bien.*
5. *Capense.* Cape of Good Hope.
6. *Scabrum.* Near Jeddo in Japan.
7. *Hirsutum*, or *Palustre.* Mountains of Switzerland, Germany, Austria, Silesia. *Peren.*
8. *Aromaticum.* Lusatia, Misnia, Austria, and Silesia. *Peren.*
9. *Coloratum.* Illyria.
10. *Aureum.* Germany and Switzerland. *Peren.*
11. *Arborescens.* Virginia. *Shrub.*
*12. *Verticillatum.* Europe. (*Persoon.*)
*13. *Glaberrimum.* Atlas near Tlemsen. (*Desfont.*)
*14. *Claytoni.* Alleghany mountains. (*Michaux.*)
Persoon ranks under this genus Sp. 4, 11, of SCANDIX, and Sp. 3 of SISON.

‡ 549. PHELLANDRIUM. *Flosculi* disci minores. *Fructus* ovatus, lævis; coronatus perianthio et pistillo.
1. *Aquaticum.* Ditches of Engl. and Eur. *Bien.*
2. *Mutellina.* Switzerland, Carniola, Austria, and Siberia. *Peren.*

‡ 555. IMPERATORIA. *Fructus* subrotundus, compressus, medio gibbus, margine cinctus. *Petala* inflexo-emarginata.
1. *Ostruthium.* West of Scotland, Switzerland, Austria, and France. *Peren.*

‡ 556. SESELI. *Umbellæ* globosæ. *Involucr.* foliolo uno alterove. *Fructus* ovatus, striatus.
1. *Silifolium.* Cape of Good Hope.
2. *Pimpinelloides.* South of Europe. *Peren.*
3. *Montanum.* Hills of France and Italy. *Per.*
4. *Striatum.* Cape of Good Hope.
5. *Glaucum.* Fran. Austr. and Carniola. *Per.*
6. *Aristatum.* Pyrenees. *Bien.*
7. *Annuum.* Hungary, France, and Germ. *Ann.*
8. *Chærophylloides.* Cape of Good Hope.
9. *Ammoides.* Portugal and Italy.
10. *Tortuosum.* South of Europe. *Bien.*
11. *Turbith.* South of Europe. *Peren.*
12. *Hippomarathrum.* Austria, Carniola, and Germany. *Peren.*
13. *Pyreneum.* Pyrenees.
14. *Saxifragum.* At Geneva and Germany. *Per.*
15. *Elatum.* France and Austria. *Peren.*
*16. *Leucospermum.* At Buda in Hungary.

‡ 550. CICUTA. *Fructus* subovatus, sulcatus.
1. *Virosa.* Britain and other parts of Eur. *Per.*
2. *Bulbifera.* Virginia and Canada.
3. *Maculata.* Watery parts of Virginia. *Peren.*

3. *With no Involucrum, neither universal nor partial.*

‡ 559. SMYRNIUM. *Fructus* oblongus, striatus. *Pet.* acuminata, carinata.
1. *Perfoliatum.* Italy and Candia. *Bien.*
2. *Ægyptiacum.* Egypt.
3. *Laterale.* Cape of Good Hope.
4. *Olusatrum.* Britain, Wales, Fran. Spain. *Bien.*
5. *Apiifolium.* Candia.
6. *Aureum.* North America. *Peren.*
7. *Integerrimum.* Virginia. *Peren.*
*8. *Atropurpureum.* North America. (*Lamarck.*)
*9. *Cordatum.* Woods of Carolina. (*Michaux.*)

‡ 561. CARUM. *Fructus* ovato-oblongus, striatus. *Involucrum* 1-phyllum. *Petala* carinata, inflexo-emarginata.
1. *Carvi.* England and N. of Europe. *Bien.*
2. *Simplex.* Siberia.

557. THAPSIA. *Fructus* oblongus, membrana cinctus.
1. *Villosa.* Spain, Portugal, France. *Peren.*
2. *Fœtida.* Spain. *Peren.*
3. *Asclepium.* Italy, and in the East. *Peren.*
4. *Garganica.* Barbary and Mt. Gargano. *Per.*
5. *Trifoliata.* Virginia.
*6? *Polygama.* Near Bone. (*Desfont.*)

‡ 558. PASTINACA. *Fructus* ellipticus, compresso-planus. *Petala* involuta, integra.
1. *Lucida.* South of Europe, Majorca, Minorca, and Ivica. *Peren. Bien.*
2. *Sativa.* Europe, in pastures and rubbishy parts. *Bien.*
3. *Opopanax.* Italy and Sicily. *Peren.*
*4. *Dissecta.* In the East. (*Ventenat.*)

‡ 560. ANETHUM. *Fructus* subovatus, compressus striatus. *Petala* involuta, integra.
1. *Graveolens.* Corn fields of Spain, Portugal, and about Astracan. *Ann.*
2. *Segetum.* Portugal. *Ann.*
3. *Fœniculum.* England and other parts of Europe. *Peren.*

‡ 564. ÆGOPODIUM. *Fructus* ovato-oblongus striatus.
1. *Podagraria.* England and other parts of Europe. *Peren.*

‡ 563. APIUM. *Fructus* ovatus, striatus. *Involucr.* 1-phyllum. *Petala* æqualia.
1. *Petroselinum.* Sardinia near springs. *Bien.*
2. *Graveolens.* England and wet parts of Europe. *Bien.*

‡ 562. PIMPINELLA. *Fructus* ovato-oblongus. *Petala* infera. *Stig.* subglobosa.
1. *Saxifraga.* England and other parts of Europe. *Peren.*
2. *Nigra.* Dry parts of Germany. *Peren.*
3. *Magna.* England and S. of Europe. *Peren*
4. *Dissecta.* Germany and Sweden. *Peren.*
5. *Glauca.* Spain and Italy.
6. *Capensis.* Cape of Good Hope.
7. *Peregrina.* Barren pastures of Italy. *Peren*
8. *Anisum.* Egypt. *Ann.*
9. *Dichotoma.* Spain.
10. *Dioica.* England, France, Austria, an Switzerland. *Peren.*
*11. *Lutea.* Atlas. (*Desfont.*)
*12. *Tragium.* Dauphiny. (*Villars.*)
*13. *Villosa.* Barbary. (*Schousb.*)
*14. *Bubonoides.* Portugal. (*Brotero.*)

ORDER III. TRIGYNIA.

SECT. I. *Flowers Superior.*

‡ 567. VIBURNUM. *Cal.* 5-partitus, superus. *Cor* 5-fida. *Bacca* 1-sperma.
1. *Tinus.* Portugal, Spain, Italy. *Shrub.*
2. *Tinoides.* South America. *Shrub.*
3. *Villosum.* Mts. in the S. of Jamaica. *Shru*
4. *Scandens.* Japan. *Shrub.*
5. *Nudum.* Virginia. *Shrub.*
6. *Prunifolium.* Virginia and Canada. *Shru*

580. Alsine. *Cal.* 5-phyllus. *Pet.* 5, æqualia. *Caps.* 1-locularis, 3-valvis.
1. *Media.* Cultivated parts of Europe. *Ann.*
2. *Segetalis.* About Paris. *Ann.*
3. *Mucronata.* Switzerland and France. *Ann.*
*4. *Prostrata.* Egypt.
*5. *Viscosa.* Leipsic and Silesia. (*Stam.* 3.)

Sp. 1. is a Stellaria; and Persoon ranks Sp. 2, 3, 5, under the subgenus Segetella, and is of opinion that this genus should be divided, or rather suppressed.

577. Telephium. *Cal.* 5-phyllus. *Pet.* 5. receptaculo inserta. *Caps.* 1-locularis, 3-valvis.
1. *Imperati.* Provence and Switzerland. *Per.*
2. *Oppositifolium.* Barbary.

578. Corrigiola. *Cal.* 5-phyllus. *Pet.* 5. *Sem.* 1, triquetrum.
1. *Littoralis.* England, France, Spain, Germany, Switzerland. *Ann.*
2. *Capensis.* Cape of Good Hope. *Ann.*
*3. *Telephiifolia.* Near Bonlou in France. *Per.*

584. Portulacaria. *Cal.* 2-phyllus. *Petala* 5. *Sem.* 1. alato-triquetrum.
1. *Afra.* Africa. *Shrub.*

579. Pharnaceum. *Cal.* 5-phyllus. *Cor.* 0. *Caps.* 3-locularis, polysperma.
1. *Cerviana.* Rostok, Russia, Spain, Guinea, Asia. *Ann.*
2. *Lineare.* Cape of Good Hope.
3. *Teretifolium.* Cape of Good Hope. *Shrub.*
4. *Microphyllum.* Cape of Good Hope.
5. *Marginatum.* Cape of Good Hope.
6. *Mollugo.* East Indies. *Ann.*
7. *Glomeratum.* Cape of Good Hope. *Ann.*
8. *Serpyllifolium.* Cape of Good Hope. *Ann.*
9. *Quadrangulare.* Cape of Good Hope. *Shr.*
10. *Incanum.* Africa. *Shrub.*
11. *Albens.* Cape of Good Hope. *Shrub.*
12. *Dichotomum.* Cape of Good Hope. *Ann.*
13. *Distichum.* East Indies.
14. *Cordifolium.* Cape of Good Hope.
*15. *Sperguloides.* India. (*Encyc. Bot.*)
*16. *Bellidifolium.* Jamaica and Guiana.

573. Xylophylla. *Cal.* 5-part. coloratus. *Cor.* 0. *Stig.* lacera. *Caps.* 3-locul. *Sem.* gemina.
1. *Longifolia*, or *Ceramica.* E. Indies. *Shrub.*
2. *Latifolia.* Amer. Surinam, and Jamaica. *Shr.*
3. *Arbuscula*, or *Speciosa.* Jam. (*Fil.* 3.) *Shr.*
4. *Falcata.* Bahama islands, Porto Rico, and the island of Santa Cruz. *Shrub.*
5. *Angustifolia.* Jamaica. (*Fil.* 3.) *Shrub.*
6. *Montana.* Jamaica. *Shrub.*
7. *Ramiflora.* Siberia. *Shrub.*
*8. *Linearis.* Jamaica. *Shrub.*

Persoon ranks this genus as a subgenus to *Phyllanthus*, under the class Monœcia and order *Monadelphia.*

582. Basella. *Cal.* 0. *Cor.* 7-fida, laciniis 2-oppositis latioribus, tandem baccata. *Sem.* 1.
1. *Rubra.* India. *Bien. Ann.*
2. *Alba.* China, Amboyna. *Bien.*
3. *Lucida.* India. *Ann.*
4. *Cordifolia.* East Indies.
5. *Vesicaria.* Peru. *Ann.*

Order IV. Tetragynia.

‡585. Parnassia. *Cal.* 5-partitus. *Pet.* 5. *Nectaria* 5. cordata ciliata apicibus globosis. *Caps.* 4-valvis.
1. *Palustris.* Bogs of England and Eur. *Per.*
*2. *Caroliniana.* Wet parts of Carolina. *Peren.* (*Michaux.*)
*3. *Asarifolia.* N. America. *Peren.*

586. Evolvulus. *Cal.* 5-phyllus. *Cor.* 5-fida, rotata. *Caps.* 4-locul. *Sem.* solitaria.
1. *Nummularius.* Jamaica and Barbadoes. *Ann.*
2. *Gangeticus.* India.
3. *Emarginatus.* East Indies. *Ann.*
4. *Alsinoides.* Malabar, Ceylon, N. Holl. *Ann.*
5. *Hirsutus.* East Indies. *Ann.*
6. *Linifolius.* Jamaica, New Holland. *Ann.*
7. *Sericeus.* Dry parts of Jamaica.
*8. *Decumbens.* N. Holland. (*Brown*, p. 489.)
*9. *Villosus.* Peru and N. Holl. *Per.* (*Brown* and *Fl. Per.*)
*10. *Argenteus.* New Holland. (*Brown.*)
*11. *Incanus.* Peru. *Shrub.* (*Fl. Per.*)

See *Flor. Peruv.* iii. p. 30, and the genus Cladostyles. This genus is ranked by Persoon under the order *Digynia.* The styles are only two in number, but deeply cleft.

Order V. Pentagynia.

Sect. I. *Flowers Superior.*

587. Aralia. *Involucr.* umbellulæ. *Cal.* 5-dentatus, superus. *Cor.* 5-petala. *Bacca* 5-sperma.
1. *Arborea.* Jamaica. *Shrub.*
2. *Capitata.* Antilles, Jamaica, &c. *Shrub.*
3. *Cordata.* Japan. *Peren.*
4. *Japonica.* Japan. *Shrub.*
5. *Pentaphylla.* Japan. *Shrub.*
6. *Sciodaphyllum.* Blue Mts. Jamaica. *Shrub.*
7. *Spinosa.* Virginia. *Shrub.*
8. *Chinensis.* China. *Shrub.*
9. *Racemosa.* Canada. *Peren.*
10. *Nudicaulis.* Virginia and Java. *Peren.*
*11. *Hispida.* From Quebec to Hudson's Bay. *Shrub.* (*Michaux.*)
*12. *Humilis.* New Spain. (*Cavanilles.*)

588. Glossopetalum. *Cal.* semi-inferus, 5-dentat. *Cor.* 5-petala, petalis ligula adnata instructis. *Bacca* 5-sperma.
1. *Glabrum.* Guiana. *Shrub.*
2. *Tomentosum.* Guiana. *Shrub.*

Sect. II. *Flowers Inferior.*

591. Crassula. *Cal.* 5-phyllus. *Pet.* 5. *Squamæ* 5 nectariferæ ad basin germinis. *Caps.* 5.
1. *Coccinea.*
2. *Cymosa.*
3. *Flava.*
4. *Pubescens.*
5. *Pruinosa.*
6. *Scabra.*
7. *Corallina.*
8. *Vestita.*
9. *Argentea.*
10. *Perfoliata.*
11. *Perforata.*
12. *Fruticulosa.*
13. *Ramosa.*
14. *Mollis.*
15. *Tetragona.*
16. *Muricata.*
17. *Imbricata.*
18. *Obvallata.*
19. *Cultrata.*
20. *Obliqua.*
21. *Spathulata.*
22. *Punctata.*

Class V. Pentandria.

‡ 589. Statice. *Cal.* 1-phyllus, integer, plicatus, scariosus. *Pet.* 5. *Sem.* 1, superum.
1. *Armeria.* England, Europe, and North America. *Peren.*
2. *Juniperifolia,* or *Cæspitosa.* Sea shores of Spain and Portugal. *Peren.*
3. *Alliacea.* Mountains of Spain and Morocco. *Peren.*
4. *Cephalotes.* Algarva. *Peren.*
5. *Graminifolia.* *Peren.*
6. *Limonium.* Coasts of England, Europe, and Virginia. *Peren.*
7. *Gmelini.* Siberia, from the Jaik to the Angara. *Peren.*
8. *Scoparia.* Siberia. *Peren.*
9. *Latifolia.* Siberia, at the river Don, near Asoph, also in the Crimea. *Peren.*
10. *Oleæfolia.* Italy and Spain.
11. *Incana.* Arabia and Siberia. *Peren.*
12. *Auriculæfolia.* Coast of Barbary. *Peren.*
13. *Cordata.* Shores of the Mediterranean. *Per.*
14. *Scabra.* Cape of Good Hope.
15. *Tetragona.* Cape of Good Hope.
16. *Reticulata.* Malta, Spain, and Siberia. *Per.*
17. *Echioides.* Montpellier. *Bien.*
18. *Speciosa.* Tartary. *Bien.*
19. *Tartarica.* Tartary. *Bien.*
20. *Echinus.* Greece and deserts of Media.
21. *Flexuosa.* Siberia. *Peren.*
22. *Purpurata.* Cape of Good Hope. *Peren.*
23. *Longifolia.* Cape of Good Hope.
24. *Minuta.* At the Mediterranean. *Shrub.*
25. *Pectinata.* Canary Islands. *Shrub.*
26. *Suffruticosa.* Siberia. *Shrub.*
27. *Monopetala.* Sicily. *Shrub.*
28. *Axillaris.* Arabia Felix. *Shrub.*
29. *Cylindrifolia.* Arabia and N. of Africa. *Shr.*
30. *Linifolia.* Cape of Good Hope. *Shrub.*
31. *Aurea.* Mts. and fields of Dauria. *Shrub.*
32. *Ferulacea.* Barbary, Portugal, and Spain.
33. *Pruinosa.* Palestine.
34. *Sinuata.* Sicily, Palestine, and Africa. *Per.*
35. *Lobata.* Africa.
36. *Spicata.* Persia.
37. *Mucronata.* Barbary. *Peren.*
* 38. *Arenaria.* Near Fountainbleau.
* 39. *Lusitanica.* Barbary and Portugal.
* 40. *Fasciculata.* Coasts of Portugal. (*Ventenat.*)
* 41. *Globulariæfolia.* Near Rone. (*Desfont.*)
* 42. *Spathulata.* Near Lacalle.
* 43. *Acerosa.* Galatia. (Willd. *N. A. Ber.?*)
* 44. *Ægyptiaca.* Egypt.

Persoon ranks Sp. 6—37, and 41—44. under the subgenus *Limonium.*

Decagynia.

598. Schefflera. *Cal.* 5-dent. superus. *Pet.* 5. *Caps.* 8-10 locularis, loculis monospermis.
1. *Digitata.* New Zealand.

Polygynia.

‡ 599. Myosurus. *Cal.* 5-phyllus, basi adnatus. *Nect.* 5, lingulata, petaliformia. *Sem.* numerosa.
1. *Minimus.* England, and other parts of Europe. *Ann.*

600. Zanthorhiza. *Cal.* 0. *Pet.* 5. *Nect.* 5 pedicellata. *Caps.* 5. monospermæ.
1. *Apiifolia.* New Georgia and Carolina. *Shr.*

NEW GENERA.

New Genera.

Order I. Monogynia.

I. Epacris. *Cal.* coloratus, multibracteatus: bracteis coloratis. *Cor.* tubulosa: limbo imberbi. *Stam.* epipetala. *Anth.* supra medium peltatis. *Squamulæ* hypogynæ 5. *Caps.* placentis columnæ centrali adnatis. (*Smith. Labil. R. Brown.*)
1. *Purpurascens.* New South Wales. *Shrub.*
2. *Obtusifolia.* New South Wales. *Shrub.*

II. Andersonia. *Cal.* coloratus, bracteis foliaceis 2 pluribusve imbricatus. *Cor.* longitudine calycis: limbi laciniis basi barbatis. *Stam.* hypogyna: *Antheris* infra medium affixis. *Squamulæ* hypogynæ 5 nunc connatæ. *Caps.* placentis columnæ centrali adnatis. (*R. Brown.*)
1. *Sprengelioides.*
2. *Parvifolia.*
3. *Cærulea.*
4. *Squarrosa.*
5. *Depressa.*
6. *Micrantha.*

All shrubby, and from New Holland. Brown's *Prodromus,* p. 554.

III. Styphelia. *Cal.* bracteis 4, pluribusve. *Cor.* elongato-tubulosa: tubo intus juxta basin fasciculis 5 villorum; limbo laciniis resolutis, barbatis. *Fil.* exserta. *Drupa* subexsucca, putamine osseo, solido, 5-loculari. (*R. Brown.*)

See the species in p. 143.

IV. Leucopogon. *Cal.* bibracteatus. *Cor.* infundib. limbo patente longitudinaliter barbato. *Fil.* inclusa. *Drupa* 2-5-locularis, baccata vel exsucca, nunc crustacea. (*R. Brown.*)
1. *Lanceolatus.*
2. *Australis.*
3. *Richei.*
4. *Affinis.*
5. *Interruptus.*
6. *Verticillatus.*
7. *Apiculatus.*
8. *Polystachyus.*
9. *Multiflorus.*
10. *Rubricaulis.*
11. *Villosus.*
12. *Obovatus.*
13. *Revolutus.*
14. *Margarodes.*
15. *Muticus.*
16. *Trichocarpus.*
17. *Ericoides.*
18. *Propinquus.*
19. *Virgatus.*
20. *Collinus.*
21. *Amplexicaulis.*
22. *Alternifolius.*
23. *Distans.*
24. *Reflexus.*
25. *Glabellus.*
26. *Microphyllus.*
27. *Tamariscinus.*
28. *Gracilis.*
29. *Striatus.*
30. *Nervosus.*
31. *Carinatus.*
32. *Assimilis.*
33. *Cucullatus.*
34. *Pendulus.*
35. *Biflorus.*
36. *Setiger.*
37. *Acuminatus.*
38. *Cuspidatus.*
39. *Imbricatus.*
40. *Ruscifolius.*
41. *Pauciflorus.*
42. *Leptospermoides.*

43. *Rotundifolius.*
44. *Appressus.*
45. *Juniperinus.*
46. *Deformis.*
47. *Flexifolius.*
48. *Esquamatus.*

All shrubby, and from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 541.

V. Ipomopsis. *Cal.* 5-fidus basi membranaceus. *Cor.* infundibuliformis. *Stig.* 3-fidum. *Caps.* supera, 3-locularis, 3-valvis. *Sem.* pauca, angulata. (*Michaux.*)

1. *Elegans.* Carolina. *Bien.*
2. *Inconspicua.* North America. *Ann.*

The first species is the *Cantua coronopifolia* of Willdenow, given under the genus Gilia by Persoon. See Michaux, *Flora Boreali-American.* i. p. 141.; and Smith's *Exotic Botany*, i. p. 23.

VI. Coboea. *Cal.* 5-fidus. *Cor.* campanulata. *Stam.* declinata, demum spiralia. *Caps.* 3-5-locularis. *Sem.* plurima, imbricata. (*Cavanilles.*)

1. *Scandens.* Near Mexico and Acapulco. *Shr.*

See Cavanilles, *Icones et Descriptiones Plantarum*, &c. 1791–1801 ; and Persoon's *Synopsis*, i. p. 185., where a different generic character is given.

VII. Goodenia. *Cal.* superus : limbo 5-partito : laciniis æqualibus. *Anth.* distinctæ. *Stylus* simplex. *Caps.* 2-locularis : dissepimento parallelo. *Sem.* imbricata, compressa. (R. Brown, *Prodr.* p. 574.)

See the species under Goodenia, p. 147.

VIII. Euthales. *Cal.* inferus, tubulosus, 5-fidus, inæqualis. *Cor.* tubus infra germini adhærens, apice hinc fissus ; limbus bilabiatus. *Anth.* distinctæ. *Stig.* indusium bilabiatum. *Caps.* 4-valvis, basi bilocularis. *Sem.* imbricata, compressa. (R. Brown's *Prodromus*, p. 579.)

1. *Trinervis.* New Holland. *Peren.*

An intermediate genus between Goodenia and Velleia.

IX. Scævola. *Cor.* hinc longitudinaliter fissa, genitalia exserens ; limbo inde secundo, 5-partito : laciniis alatis, conformibus. *Anth.* distinctæ. *Stig.* indusium ciliatum. *Drupa* inferæ. (R. Brown's *Prodromus*, p. 582.)

1. *Attenuata.*
2. *Nitida.*
3. *Crassifolia.*
4. *Globulifera.*
5. *Ovalifolia.*
6. *Æmula.*
7. *Cuneiformis.*
8. *Sinuata.*
9. *Humilis.*
10. *Microcarpa.*
11. *Pallida.*
12. *Suaveolens.*
13. *Cæspitosa.*
14. *Revoluta.*
15. *Linearis.*
16. *Paludosa.*
17. *Angulata.*
18. *Hispida.*
19. *Striata.*
20. *Spinescens.*

Sp. 18. is Sp. 7. of Goodenia, p. 147.

X. Oxyanthus. *Cor.* tubus filiformis, longissimus. *Anth.* in fauce sessiles. *Stig.* simplex. *Fruct.* inferus, bilocularis, polyspermus. (*Decandolle.*)

1. *Speciosus.* Sierra Leone. *Shrub.*

See *Annales du Museum d'Hist. Nat.* ix. p. 218.

XI. Pinckneya, or Pinknea, Persoon. *Cal.* lacinea una maxima, foliiformis. *Stam.* exserta. *Stig.* obtuse bilobum. *Caps.* infera, 2-partibilis. *Sem.* numerosa, alata. (*Michaux.*)

1. *Pubens*, or *Pubescens*, Persoon. Georgia, banks of river St Maria. *Shrub.*

See Michaux, *Flora Boreali-Americana*, 103.

XII. Retiniphyllum. *Cor.* hypocraterif. calice triplo longior, limbo 5-partit. *Stam.* 5, summo tubo imposita, laciniis alterna. *Ovarium* inferum. *Stylus* exsertus. *Stig.* indivisum. *Bacca* globosa, striata, calice persistente, umbilicata 5-pyrena : pyrenis hinc convexis, inde angulatis. (*Humboldt*, p. 86.)

1. *Secundiflora.* Between the Rio Negro and Orinoco, near San Baltazar.

XIII. Machaonia. *Cor.* limbo 5-partita, laciniis tubo brevioribus fauce hirsuta. *Stam.* 5 fauci imposita, exserta. *Ovarium* oblongum, inferum. *Stylus* longitudo staminum erectus. *Stig.* bifidum-incrassatum. *Caps.* cuncata, utrinque sulcata, dentibus persistentibus calycis coronata, a basi ad apicem dehiscens, bivalvis, bilocularis, unisperma ; valvulis margine incurvis crassiusculis. *Sem.* lineari-ovatum. *Dissepimentum* centrale, valvulis parallelum. (*Humboldt*, p. 101.)

1. *Acuminata.* City of Guyaquil. *Shrub.*

See Humboldt's *Plantæ Equinoctiales.*

XIV. Desfontainia. See *Flor. Peruv.* p. 29.

1. *Splendens.* Mount Quindiu in South America. *Shrub.*

See Humboldt's *Plantæ Equinoctiales*, p. 157.

XV. Enchylæna. *Perianth.* 1-phyllum, semiquinquefidum ; fructiferum baccatum, connivens. *Stam.* imo perianthio inserta. *Stig.* 2-3, filiformia. *Utriculus* inclusus. *Sem.* depressum ; *Integumento* simplici ; *Albumine* centrali ; *Embryone* cyclico. (R. Brown, *Prodromus*, p. 407.)

1. *Tomentosa.*
2. *Paradoxa.*

Both shrubs from New Holland.

XVI. Kochia. *Perianth.* 1-phyllum, 5-fidum, fructiferi laciniis dorso appendiculatis. *Stam.* imo perianthio inserta. *Utriculus* inclusus, depressus. *Sem.* horizontale, albumine parco vel nullo, integumento simplici. *Embryo* curvatus, non spiralis. (R. Brown, *Prodromus*, p. 409.)

1. *Brevifolia.*
2. *Aphylla.* New Holland.

XVII. Pomaderris. *Cal.* turbinatus, 5-fidus. *Pet.* 5, fornicata, staminibus opposita. *Caps.* cocculis tribus, membrana operculatis. (Labill. *Nov. Holl.* i. p. 61.)

1. *Elliptica.* Van Diemen's Island. *Shrub.*
2. *Apetala.* New Holland. *Shrub.*

XVIII. Lasiopetalum. *Cal.* rotatus 5-fidus. *Stamina* basi squama munita. *Anth.* apice poris duobus. *Caps.* supera, trilocularis, trivalvis : valvis medio septiferis. (Ventenat. *Malmais*, 59.)

1. *Ferrugineum.* New South Wales. *Shrub.*
2. *Purpureum.* New Holland. *Shrub.*
3. *Arborescens.* New South Wales. *Shrub.*
4. *Quercifolium.* New Holland.

XIX. Bursaria. *Pet.* 5, receptaculo, inserta. *Caps.* compressa, bipartibilis, 1-locul. 2-sperma. (*Cavanilles.*)

1. *Spinosa.* New South Wales. *Shrub.*

See Cavanilles, *Icones*, &c. iv. p. 30; and Persoon, *Synopsis*, i. p. 248.

XX. Gelsemium. *Cal.* 5-dentatus, inferus. *Cor.* infundibulif. *Caps.* ovata, compresso-plana, 2-locul. polysperma. (*Jussieu.*)

1. *Sempervirens.* North America. *Shrub.*

See Jussieu, *Genera Plantarum*, 150; and Persoon's *Synopsis*, i. p. 269. This species is the *Bignonia sempervirens* of Willdenow.

XXI. Wrightia[*]. Contorta. *Folliculi* 2, erecti. *Sem.* extremitate inferiori comosa. *Cor.* hypocraterif. faux coronata squamis 10, divisis. (*R. Brown.*)

1. *Antidysenterica.* E. Indies. *Shrub.* This is the *Nerium Antidysentericum* of Willdenow.
2. *Zeylanica.* Ceylon. *Shrub.* This is the *Nerium Zeylanicum* of Willdenow.
3. *Tinctoria.* East Indies.
4. *Pubescens.* New Holl. and the Island Timor.

See Brown, *Wern. Trans.* vol. i. p. 63, and *Prodromus*, p. 467.

XXII. Ichnocarpus. Contorta. *Folliculi* 2, divaricati. *Sem.* extremitate superiori comosa. *Cor.* hypocraterif. faux nuda. *Anth.* a stigmate liberæ. (*R. Brown.*)

1. *Frutescens.* Ceylon and East Indies. *Shrub.* This Sp. is the *Apocynum frutescens* of Willdenow. See Brown, *Wern. Trans.* i. p. 50.

XXIII. Amsonia, or Amzonia. (Persoon.) Contorta. *Folliculi* 2, erecti. *Sem.* nuda. *Cor.* infundibulif. (*Michaux.*)

1. *Latifolia.*
2. *Angustifolia.*

These two Sp. are given with the same specific names by Willdenow in his genus *Tabernæmontana*. See Michaux, *Flor. Amer.* i. p. 121; and Persoon's *Synopsis*, i. p. 269.

XXIV. Leptomeria. *Perianth.* rotatum, 4-5-part. persistens, nudiusculum. *Discus* epigynus 4-5-lobus. *Stig.* divisum. *Drupa* coronata (sæpe baccata.) (R. Brown, *Prodr. p.* 353.)

1. *Acida.*
2. *Billardieri.*
3. *Aphylla.*
4. *Acerba.*
5. *Scrobiculata.*
6. *Pauciflora.*
7. *Squarrulosa.*
8. *Axillaris.*

All shrubby, and from New Holland.

XXV. Choretrum. *Perianth.* 5-part. coloratum, foliolis fornicatis, carina *interiori* descendenti, persistens: calyculo minutissimo 5-dentato munitum! *Stam.* cavitate laciniarum inclusa. *Anth.* 4-locul. 4-valv! *Stigm.* stellatum. *Drupa?* (R. Brown, *Prodromus*, p. 354.)

1. *Lateriflorum.*
2. *Glomeratum.*

Both shrubby, and from New Holland.

XXVI. Exocarpos. *Perianth.* 5-part. raro 4-part. rotatum. *Stam.* 5, basi laciniarum inserta. *Stylus* brevissimus. *Stig.* obtusum. *Nux* supera, corticata, 1-sperma, pedunculo ampliato, baccato imposita. *Embryo* inversus, teres; in axi *Albuminis* carnosi. *Masculi* et *Feminei* Flores, hermaphroditis sæpius misti. (*Labill.* and R. Brown, *Prodr.* 356.)

1. *Latifolia.*
2. *Cupressiformis.*
3. *Spartea.*
4. *Humifusa.*
5. *Stricta.*
6. *Aphylla.*

All shrubby, and from N. Holl. and Van Diem. Isl.

XXVII. Hemichroa. *Perianth.* 5-part. intus coloratum; fructiferum non mutatum. *Stam.* 5, v. pauciora, basi connata, hypogyna? *Stylus* 2-part. *Utriculus* ovalis. *Sem.* verticaliter compressum, integumento duplici, albuminosum: *Embryone* hemicyclico, *Radicula* infera, adscendenti. (R. Brown, *Prodromus*, p. 409.)

1. *Pentandra.*
2. *Diandra.*

Both shrubby, and from New Holland and Van Diemen's Island.

XXVIII. Sclerolæna. *Perianth.* 1-phyll. ore 5-fidum. *Stam.* 5, imo perianthio inserta. *Stylus* 2-part. *Utriculus* inclusus perianthio nucamentaceo exsucco, laciniis muticis vel spinosis. *Sem.* verticuliter compressum, albuminosum, integumento simplici; *Embryone* cyclico, *Radicula* supera. (R. Brown's *Prodromus*, p. 410.)

1. *Paradoxa.*
2. *Biflora.*
3. *Uniflora.*

All shrubby, and from New Holland.

XXIX. Deeringia. *Perianth.* 5-part. *Stam.* 5, basi in cyathulam edentulam connata. *Anth.* 2-locul. *Stylus* 3-part. *Bacca* polysperma. (R. Brown, *Prodromus*, p. 413.)

1. *Celosioides*, the *Celosia baccata* of Willdenow. New Holland.

XXX. Lestibudesia. *Perianth.* 5-part. *Stam.* 5, basi in cyathulam edentulam connata. *Anth.* 2-locul. *Ovar.* polyspermum. *Stylus* brevis v. nullus. *Stig.* 3-4, filiformia, recurva. *Caps.* polysperma, transversim dehiscens. (*Thouars.* and R. Brown, *Prodr.* p. 412.)

1. *Arborescens.* New Holland.
2. *Spicata.*

The other species of this genus are Sp. 6, 13, 14, of *Celosia*, and other unpublished species.

XXXI. Trichinium. *Perianth.* 5-part. laciniis linearibus. *Stam.* 5, basibus connatis, edentulis. *Anth.* 2-locul. *Stylus* indivisus. *Stig.* capitatum. *Utriculus* evalvis, 1-spermus, inclusus basi conniventi perianthii, laciniis patulis plumosis. (R. Brown, *Prodr.* p. 414.)

1. *Fusiforme.*
2. *Gracile.*
3. *Distans.*
4. *Spathulatum.*
5. *Macrocephalum.*
6. *Incanum.*

In general perennial, and all from New Holland and Van Diemen's Island.

XXXII. Ptilotus. *Perianth.* 5-part. foliolis lanceolatis. *Stam.* 5, ipsa basi connata, edentula. *Anth.* 2-locul. *Stylus* indivisus. *Stig.* capitatum. *Utriculus* evalvis, 1-spermus, inclusus perianthii foliolis 3 interioribus, medio lana cohærentibus, supra patentibus nudis. (R. Brown, *Prodr.* p. 415.)

1. *Conicus.*
2. *Corymbosus.*

Both annual, and from New Holland.

XXXIII. Gomphræna. (See p. 161.) *Perianth.* 5-part. *Stam.* 5, connata in tubulum subcylindraceum, ovario longiorem, apicibus distinctis, cum vel absque dentibus interjectis. *Anth.* 1-locul. *Stylus* 1. *Stig.* 2. *Utriculus* 1-spermus, evalvis. (R. Brown, *Prodr.* p. 415.)

1. *Lanata.*
2. *Humilis.*
3. *Flaccida.*
4. *Canescens.*

All from New Holland. This genus contains also Sp. 1, 2, 7, and 10, of the genus Gomphræna, in p. 161.

XXXIV. Philoxerus. *Perianth.* 5-part. *Stam.* 5, basi connata in cyathulam edentulam, ovario breviorem. *Anth.* 1-locul. *Stylus* 1. *Stig.* 2. *Utriculus* 1-spermus, evalvis. (R. Brown, *Prodr.* 416.)

1. *Conicus.*
2. *Diffusus.* Both from N. Holl.

This genus contains also Sp. 5, and 6 of Gomphræna, p. 161.

XXXV. Alternanthera. *Perianth.* 5-part. *Stam.* 5, basi connata in cyathulam ovario breviorem, cum vel absque dentibus brevioribus; filamentis 2

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[*] This new genus is named by Mr Brown in honour of our countryman, William Wright, M.D. F.R.S. to whom the flora of Jamaica has been under great obligations, and to whose kindness we have been indebted for much important assistance and advice in the composition of the present article.

Class V. Pentandria.

L. STENANTHERA. *Cal.* multibracteatus. *Cor.* tubulosa, tubo calyce duplo longiore, ventricoso, intus absque fasciculis villorum; limbo brevi, patenti, semibarbato. *Fil.* inclusa, carnosa antheris latiora. *Ovarium* 5-loculare. *Drupa* subexsucca, putamine osseo, solido. (R. Brown, *Prodromus*, p. 538.)

1. *Pinifolia.* New South Wales. *Shrub.*

LI. MELICHRUS. *Cal.* multibracteatus. *Cor.* rota v. urceolata juxta basin fasciculis 5 glandulorum, laciniis semibarbatis. *Ovarium* 5 loculare. *Drupa* subexsucca, putamine osseo solido. (R. Brown, *Prodromus*, p. 539.)

1. *Rotatus.* 2. *Urceolatus.*

Both shrubby, and from New Holland. Sp. 1. is the *Ventenatia procumbens* of Cavanilles.

LII. CYATHODES. *Cal.* multibracteatus. *Cor.* infundibulif. *tubo* calycem vix superante, intus absque fasciculis villorum glandulisve; *limbo* patente, barbâ rarâ v. nulla. *Fil.* inclusa. *Ovarium* 5-10-locul. *Drupa* baccata. (R. Brown, *Prodr.* p. 539.)

1. *Glauca.* The *Cyathodes* glauca of Labill.
2. *Straminea.* 5. *Oxycedrus.* } Given under
3. *Dealbata.* 6. *Abietina.* } *Styphelia* by
4. *Parvifolia.* } Labill.

All shrubby, and from Van Diemen's Island.

LIII. LISSANTHE. *Cal.* bibracteatus v. ebracteatus. *Cor.* infundibulif. limbo imberbi. *Ovarium* 5-loculare. *Drupa* baccata, putamine osseo, solido. (R. Brown, *Prodromus*, p. 540.)

1. *Sapida.* 4. *Montana.*
2. *Subulata.* 5. *Daphoides.*
3. *Strigosa.* 6. *Ciliata.*

Sp. 3 and 6 are given under *Styphelia* by Dr Smith, *New Holl.* 48. All shrubby, and from New Holland and Van Diemen's Island.

LIV. MONOTOCA. *Cal.* bibracteatus. *Cor.* infundibulif. limbo fauceque imberbibus. *Ovarium* monospermum! *Drupa* baccata. (R. Brown, *Prodromus*, 546.)

1. *Elliptica.* 3. *Lineata.* 5. *Empetrifolia.*
2. *Albens.* 4. *Scoparia.*

Sp. 1, 4, are given by Dr Smith under *Styphelia*, and Sp. 3 by Labill. under *Styphelia*. All shrubby, and from N. Holl. and V. Diem. Island.

LV. ACROTRICHE. *Cal.* bibracteatus. *Cor.* infundibulif. *limbi* laciniis apice barbâ deflexâ. *Drupa* subbaccata, putamine 5-loculari, celluloso! (R. Brown, *Prodromus*, p. 547.

1. *Divaricata.* 5. *Patula.*
2. *Aggregata.* 6. *Ovalifolia.*
3. *Ramiflora.* 7. *Cordata.*
4. *Serrulata.* 8. *Depressa.*

Sp. 4, 7 are given by Labillard. under *Styphelia*. All shrubby, and from New Holland and Van Diemen's Island.

LVI. TROCHOCARPA. *Cal.* bibracteatus. *Cor.* infundibulif. limbo patenti, barbato. *Ovarium* 10-loculare. *Drupa* baccata, putamine rotato-10-lobo, demum partibili. (R. Brown, *Prodr.* p. 548.)

1. *Laurina.* New South Wales. *Shrub.*

LVII. DECASPORA. *Cal.* bibracteatus. *Cor.* campanulata, limbo laxe barbato. *Stam.* exserta. *Ovarium* 10-loculare. *Bacca* 10-pyrena. (R. Brown, *Prodr.* p. 548.)

1. *Disticha.* 2. *Thymifolia.*

Sp. 1. given under CYATHODES by Labill. Both shrubby, and from Van Diemen's Island.

LVIII. PENTACHONDRA. *Cal.* bracteis 4 pluribusve. *Cor.* infundibulif. limbo patenti, longitudinaliter dense barbato. *Ovarium* 5-loculare. *Bacca* 5-pyrena. (R. Brown, *Prodr.* p. 549.)

1. *Involucrata.* Van Diemen's Island. *Shrub.*
2. *Pumila*, the *Epacris pumila* of Forster. Van Diemen's Island. *Shrub.*

LIX. NEEDHAMIA. *Cal.* bibracteatus. *Cor.* hypocraterif.; limbo 5-fido, imberbi, sinubus elevatis; æstivatione plicato! *Stam.* 5, inclusa. *Ovarium* 2-loculare. *Drupa* exsucca. *Folia* opposita. (R. Brown, *Prodr.* p. 549.)

1. *Pumilio.* New Holland. *Shrub.*

LX. LYSINEMA. *Cal.* coloratus, multibracteatus, bracteis texturâ calycis. *Cor.* hypocraterif. tubo nunc 5-partibili, limbi laciniis imberbibus, dextrorsum flexis. *Stam.* hypogyna. *Anth.* supra medium peltatis. *Squamulæ* 5 hypogynæ. *Caps.* placentis columnæ centrali adnatis. (R. Brown, *Prodr.* p. 552.)

1. *Pentapetalum.* 3. *Lasianthum.*
2. *Ciliatum.* 4. *Conspicuum.*
5. *Pungens*, the *Epacris pungens* of Cavanilles.

All shrubby, and from New Holland.

LXI. PRIONOTES. *Cal.* ebracteatus. *Cor.* tubulosa, fauce apertà, limbo imberbi. *Stam.* hypogyna. *Fil.* tubo semiadhærentibus. *Anth.* septo completo. *Squamæ* 5 hypogynæ. *Caps.* placentis - - - - (R. Brown, *Prodr.* p. 552.)

1. *Cerinthoides.* Van Diemen's Island. *Shrub.* The *Epacris Cerinthoides* of Labillard.

LXII. COSMELIA. *Cal.* foliaceus. *Cor.* tubulosa. *Stam.* epipetala. *Anth.* apicibus ciliatis filamentorum adnatæ. *Squamulæ* 5 hypogynæ. *Caps.* placentis columnæ centrali adnatis. (R. Brown, *Prodr.* p. 553.)

1. *Rubra.* New Holland. *Shrub.*

LXIII. PONCELETIA. *Cal.* foliaceus. *Cor.* breviter campanulata, 5 fida, imberbis. *Stam.* hypogyna. *Anth.* infra medium peltatæ, septo marginato. *Squamulæ* nullæ hypogynæ. *Caps.* placentis columnæ centrali adnatis. (R. Brown, *Prodr.* p. 554.)

1. *Sprengelioides.* New South Wales. *Shrub.*

LXIV. SPRENGELIA. *Cal.* subcoloratus. *Cor.* 5-partita, rotata, imberbis. *Stam.* hypogynæ. *Anth.* (connatæ v. liberæ) septo immarginato. *Squamæ* hypogynæ nullæ. *Caps.* placentis columnæ centrali adnatis. (*Smith*, and R. Brown, *Prodromus*, p. 554.)

1. *Incarnata.* 2. *Montana.*

Both shrubby, and from New Holland and Van Diemen's Island.

LXV. CYSTANTHE. *Cal.* foliaceus. *Cor.* clausa, calyptræformis, transversim dehiscens, basi truncatâ persistenti. *Stam.* hypogynæ, persistentia. *Squamulæ* nullæ hypogynæ. *Caps.* placentis ab apice columnæ centralis pendulis, solutis. (R. Brown, *Prodr.* p. 555.)

1. *Sprengelioides.* Van Diemen's Island. *Shr.*

LXVI. RICHEA, the CRASPEDIA of Willd. *Cal.* membranaceus, ebracteatus. *Cor.* clausa, calyptræformis, transversim dehiscens, basi truncatâ persistenti. *Stam.* hypogyna, persistentia. *Squamulæ* 5 hypogynæ. *Caps.* placentis ab apice columnæ centralis pendulis, solutis. (R. Brown, *Prodr.* p. 555.)

1. *Dracophylla.* Van Diemen's Island. *Shrub.*

LXVII. Dracophyllum. *Cal.* bi-v. ebracteatus. *Cor.* tubulosa, limbo 5-partito patenti, imberbi. *Stam.* epipetala v. hypogyna. *Caps.* placentis ab apice columnæ centralis pendulis, solutis. (R. Brown, *Prodr.* p. 555.)

1. *Secundum.*
2. *Squarrosum.*
3. *Capitatum.*
4. *Gracile.*

All shrubby, and from New Holland.

LXVIII. Calogyne. *Cal.* superus, limbo 5-partito, laciniis æqualibus. *Cor.* bilabiata. *Anth.* distinctæ. *Stylus* trifidus. *Glandula* epigyna inter filamenta, 2 inferiora. *Caps.* subunilocularis dissepimento abbreviato. *Sem.* imbricata, compressa. (R. Brown, *Prodr.* p. 579.)

1. *Pilosa.* New Holland.

"A Goodenia," says Mr Brown, "separavi solummodo ob stylum trifidum; lacinia singula stigmate indusiato instructa; an recte?" *Prodr.* p. 579.

LXIX. Velleia. *Cal.* inferus, 3-5-phyllus, inæqualis. *Cor. tubo* basi ovario accreto, apice hinc fisso; *limbo* bilabiato. *Anth.* distinctæ. *Stylus* indivisus. *Glandula epigyna* inter filamenta 2 anteriora. *Caps.* basi biloculari, valvis bipartitis. *Sem.* imbricata, compressa. (*Smith*, and R. Brown, *Prodr.* p. 580.)

1. *Paradoxa.*
2. *Arguta.*
3. *Lyrata.*
4. *Spathulata.*
5. *Pubescens.*
6. *Perfoliata.*

All from New Holland and Van Diemen's Island.

LXX. Lechenaultia. *Cal.* superus. *Cor.* tubo hinc longitudinaliter fisso. *Anth.* sub anthesi cohærentes. *Pollinis* granula composita. *Stig.* obsoletum, in fundo indusii bilabiati. *Caps.* prismatica, bilocularis, 4 valvis, valvis oppositis medio septiferis. *Sem.* cubica v. cylindracea nucamentacea. (R. Brown, *Prodr.* p. 581.)

1. *Formosa.*
2. *Tubiflora.*
3. *Expansa.*
4. *Filiformis.*

Sp. 1, 2, 3, shrubby, and all from New Holland.

LXXI. Anthotium. *Cal.* superus, 5-partitus. *Cor. tubus* hinc longitudinaliter fissus, *limbus* bilabiatus, labii superioris laciniis margine interiore auriculatis. *Anth.* cohærentes. *Pollinis* granula simplicia. *Ovarium* biloculare, polyspermum. *Stig.* indusium corollæ labiis contrarium. *Caps.* - - - - (R. Brown, *Prodr.* p. 582.)

1. *Humile.* New Holland.

LXXII. Diaspasis. *Cor.* subregularis, hypocraterif. tubo 5-partito, genitalia includente. *Anth.* liberæ. *Ovarium* 1-loc. 2-spermum. *Stig.* indusium ore nudo. *Nux* corticata. (R. Brown, *Prodromus*, p. 586.)

1. *Filifolia.* New Holland.

LXXIII. Dampiera. *Cor.* bilabiata, tubo hinc fisso, labii superioris laciniis margine interiore auriculatis. *Anth.* arcte cohærentes. *Ovarium* 1-spermum. *Stig.* indusium ore nudo. *Nux* crustacea. (R. Brown, *Prodr.* p. 587.)

1. *Undulata.* *Shrub.*
2. *Rotundifolia.* *Shr.*
3. *Ovalifolia.* *Shrub.*
4. *Purpurea.* *Shrub.*
5. *Ferruginea.* *Shr.*
6. *Hederacea.* *Per.*
7. *Incana.* *Peren.?*
8. *Cuneata.* *Peren.*
9. *Linearis.* *Peren.*
10. *Fasciculata.* *Per.*
11. *Oblongata.* *Per.*
12. *Stricta.* *Peren.*
13. *Parvifolia.* *Per.*

All from New Holland and Van Diemen's Island.

LXXIV. Brunonia. *Capitulum* involucratum. *Cal.* 5-fidus, 4-bracteatus. *Cor.* monopetala, infundibulif.; *limbo* 5-partito, laciniis 2 superioribus altius divisis. *Stam.* 5, hypogyna. *Anth.* connatæ. *Ovarium* monospermum. *Stig.* indusium bivalve. *Utriculus* inclusus tubo aucto indurato calycis supra patuli laciniis plumosis. *Sem.* exalbuminosum. (R. Brown, *Prodr.* p. 589.)

1. *Sericea.* New Holland.
2. *Australis.* New Holl. and Van Diemen's Isl.

See Smith, *Linn. Trans.* v. 10.

LXXV. Tiquilia. *Cal.* 5-partitus. *Cor.* infundibulif. laciniis emarginatus, fauce nuda. *Stam.* exserta. *Styl.* filiformis, longior. *Stig.* 2. simplicia. *Sem.* 4, unum sæpius abortivum.

1. *Dichotoma.* Peru. (*Flor. Peruv.* ii. p. 5.)

LXXVI. Balschia. *Cal.* subquinquefidus. *Cor.* hypocraterif. (majuscula) tubo rceto, cal. longiore: intus basi annulo barbato; fauce nuda, laciniis rotundatis. *Sem.* dura nitida.

1. *Carolinensis.* Woods of Carolina.
2. *Canescens.* Woody hills of Tenassee.

} Michaux, *Fl. Amer.* i. p. 130.

LXXVII. Onosmodium. *Cal.* profunde 5-partitus. *Cor.* oblonga subcampanulata; fauce nuda; limbo ventricoso semiquinquefido: lacin. subconniventibus acutis. *Anth.* sessiles inclusa. *Stylus* exsertus.

1. *Hispidum.* Virginia.
2. *Molle.* Tenassee near Nashville.

} Michaux, *Fl. Amer.* i. p. 133.

LXXVIII. Echiochilon. *Cal.* 4-partitus. *Cor.* bilabiata: labio superiore bilobo; inferiore 3-lobo: lobis rotundatis, tubo gracili arcuato. *Sem.* 4.

1. *Fruticosum.* Tunis near Kerwan. (*Desfont.*)

LXXIX. Patagonula. *Cor.* rotata. *Stylus* dichotomus. *Cal.* fructifer maximus. *Sem.* - - -

1. *Americana.* (*Cordia patagonula* of Willd.)

LXXX. Aldea. *Cor.* campan. *Styl.* bifidus. *Caps.* 1-locularis, 2-valvis, 2-sperma. *Cal.* 5-partito involuta, (genitalia longe exerta.)

1. *Pinnata.* Chili and Peru. (*Flor. Peruv* ii. p. 8.)

LXXXI. Phacelia. *Cal.* 5-partitus. *Cor.* subcampanulata, 5-fida. *Stam.* exserta. *Caps.* 2-locul. 2-valvis, 4-sperma.

1. *Bipinnatifida.* West of the Alleghany Mountains.
2. *Fimbriata.* High mountains of Carolina.

} *Michaux*, i. p. 134.

LXXXII. Lubinia. *Cal.* 5-partitus. *Cor.* hypocraterif: limbo plano 5-partito æquali. *Fil.* medio tubi, adnata. *Stig.* obtusum. *Caps.* 1-locul. polysperma, mucronata.

1. *Spathulata.* (*Lysimachia Mauritiana* of Willd.)

LXXXIII. Peroa. *Cal.* duplex: exterior triphyllus. *Cor.* hypocraterif.: lacin. acutis tomentosis. *Germ.* ovatum nudum. *Stig.* simplex. *Caps.* ovata, 1-locularis, 1-sperma. *Sem.* oblongum.

1. *Microphylla.* At Botany Bay. (*Cavanilles.*)

LXXXIV. Pyxidanthera. *Cal.* 5-partitus: laciniis incumbentibus paleaceo membranaceis. *Cor.* campanulata, 5-partita. *Fil.* lamellata. *Anth.* loculis subglobosis circumscissis. *Styl.* crassus. *Stig.* 3. *Caps.* - - -

1. *Barbulata.* Higher Carolina. *Peren.* (*Michaux.*)

1. *Herniariæ*. North Carolina.
2. *Argyrocoma*. Higher Carolina. } *Michaux*. i. p. 113.

CXXXVI. Gymnocarpon. *Cal.* 5-partitus, coloratus, persistens. *Cor.* 0. *Stam.* 10.; alterna sterilia. *Stig.* simplex. *Sem.* 1, cal. indurato tectum.

1. *Fruticosum*. Egypt, and near Cassa. (*Desfont.* i. p. 203.)

CXXXVII. Hagea. *Cal.* 5-phyllus. *Pet.* 5, emarginata. *Stylus* simplex. *Caps.* 3-gona, 1-locul. 3-valvis, polysperma.

1. *Teneriffæ*. Peak of Teneriffe. (*Lamarck.*)
2. *Gnaphalodes*. Near Mogadore. (*Schousb.*)

CXXXVIII. Anassera. *Cal.* parvus, 5-fidus. *Cor.* urceolata, 5 loba, intus villosa. *Stig.* didymum. *Caps.* oblonga, 2-valvis, 2-locul.

1. *Borbonica*. Bourbon. (*Lamarck.*)
2. *Moluccana*. Molucca Isles. (*Lamarck.*)

CXXXIX. Vallesia. *Cal.* minimus. *Cor.* hypocraterif. utrinque globosa. *Stam.* fauci inserta. *Drupæ* 2-divergentes. *Nux* striato, reticulata 1-locularis.

1. *Dichotoma*. Peru. (*Fl. Per.* ii. p. 26.)
2. *Cymbæfolia*. (*Rauwolfia glabra* of Willd.)

CXL. Urceola. Contorta. *Cor.* urceolata. *Nect.* cylindricum integrum, germen cingens. *Fol.* 2, 1-locul. 2-valves. *Sem.* pulposa.

1. *Elastica*. India. (Roxb. *Asiat. Res.* v. 167.)

CXLI. Strophanthus. Contorta. *Cor.* infundibulif.: laciniæ longissimæ caudatæ. *Coronulæ* faucis dentibus 10 simplicibus.

1. *Sarmentosus*. Sierra Leone. *Shrub.*
2. *Laurifolius*. Africa. } Decandolle, *Bullet. des Sciences.*
3. *Dichotomus*. (*Echites caudata* of Willd.)
4. *Hispidus*. Africa. *Shrub.* (*Decand.* ut supra.

See *Wern. Trans.* i. p. 61.

CXLII. Holarrhena. *Cor.* hypocraterif. laciniis æquilateris, fauce tuboque esquamatis. *Stam.* inclusa, imo tubo inserta. *Anth.* a stigmate liberæ, lanceolatæ, integræ, longitudinaliter polliniferæ. *Ovaria* 2. *Stylus* brevissimus. *Stig.* cylindraceum. *Squamæ* nullæ hypogynæ. *Follic.* graciles. (*Wern. Trans.* i. p. 51.)

1. *Mitis*. (The *Carissa mitis* of Vahl, *Symb.* iii. p. 44.)

This genus contains another species.

CXLIII. Isonema. *Cor.* hypocraterif.; fauce tuboque esquamatis; limbo 5 partito. *Stam.* exserta. *Fil.* fauci inserta, apice simplicia. *Anth.* sagittatæ, medio stigmati cohærentes. *Ovaria* 2. *Stylus* 1, filiformis. *Stig.* incrassatum, obtusum. *Squamæ* nullæ hypogynæ. *Follic.* - - - (*Wern. Trans.* i. p. 52.)

This genus consists of a species from Equinoctial Africa.

CXLIV. Vallaris. *Cor.* hypocraterif.; fauce tuboque esquamatis; limbo 5-fido obtuso. *Stam.* exserta. *Fil.* fauci inserta, brevissima, apice extus gibbere carnoso. *Anth.* sagittatæ, medio stigmati cohærentes. *Ovarium* biloculare. *Stylus* filiformis. *Stig.* conico-ovatum. *Squamæ* 5, hypogynæ, basi connatæ; apicibus ciliatis. *Follic.* - - - (*Wern. Trans.* i. p. 52.)

"This is the *Flos pergulanus* of Rumphius, which Linnæus considered as the first species of his genus *Pergularia*."

CXLV. Parsonsia. *Cor.* infundibulif. fauce tuboque esquamatis, limbo 5-partito, recurvo, laciniis æquilateris. *Stam.* exserta. *Fil.* medio vel juxta basin tubi inserta, filiformia. *Anth.* sagittatæ, medio stigmati cohærentes, lobis posticis polline destitutis. *Ovaria* 2, v. 1, biloculare. *Stylus* 1. *Stig.* dilatatum. *Squamæ* 5, hypogynæ, distinctæ v. connatæ. *Follic.* 2, distincti, v. cohærentes. (*Wern. Trans.* i. p. 53.)

1. *Velutina*.
2. *Mollis*.
3. *Lanceolata*. } All shrubby, and from New Holland.

This genus contains also the Echites *corymbosa*, *floribunda*, and *spicata*.

CXLVI. Lyonsia. *Cor.* infundibulif. fauce tuboque esquamatis, limbo 5-partito, recurvo, laciniis æquilateris: æstivatione valvata. *Stam.* exserta. *Fil.* medio tubo inserta filiformia. *Anth.* sagittatæ, medio stigmati cohærentes, lobis posticis polline vacuis. *Ovarium* biloculare. *Stylus* 1, filiformis, apice dilatato. *Stig.* subconicum. *Squamæ* 5, hypogynæ, connatæ. *Caps.* cylindracea, bilocularis, valvis, folliculiformibus, dissepimento parallelo libero utrinque seminifero placentis adnatis. (*Wern. Trans.* i. p. 55. and *Prodr.* p. 466.)

1. *Straminea*. New Holland and Van Diemen's Island. *Shrub.*

This plant differs from the New Holland species of *Parsonsia*, only in its fruit being capsular.

CXLVII. Alstonia. *Cor.* hypocraterif. fauce tuboque esquamatis. *Stam.* inclusa. *Anth.* lanceolatæ, longitudinaliter, polliniferæ a stigmate liberæ. *Ovaria* 2. *Stylus* 1, filiformis, apice dilatato. *Stig.* subconicum. *Squamulæ* nullæ hypogynæ, nec calycinæ. *Follic.* teretes. (*Wern. Trans.* i. p. 59.)

1. *Scholaris*. East Indies and the Moluccas. *Shrub.*
2. *Spectabilis*. Island of Temor. *Shrub.*
3. *Venenata*. East Indies. *Shrub.*
4. *Costata*. Otaheite. *Shrub.*

CXLVIII. Cryptolepis. *Cor.* infundibulif. *Tubus* squamulis 5, obtusis, inclusis, laciniis limbi alternantibus. *Faux* nuda. *Stam.* inclusa, imo tubo inserta. *Anth.* sagittatæ. *Ovar.* 2. *Styli* 0. *Stig.* dilatatum, apiculo conico. *Squam.* 5, hypogynæ. *Follic.* - - - (*Wern. Trans.* i. p. 58.)

This plant is a shrub from the East Indies.

CXLIX. Prestonia. *Cor.* hypocraterif. *Faux* coronata, *tubulo* annulari indiviso, *squamisque* 5, interioribus laciniis limbi alternantibus. *Anth.* semi-exsertæ, sagittatæ, medio stigmati cohærentes, lobis posticis polline vacuis. *Ovar.* 2. *Stylus* 1, filiformis, apice dilatato. *Stig.* turbinatum apiculo angustiore. *Urceolus* hypogynus, 1-phyllus. *Foll.* - - - (*Wern. Trans.* i. p. 58.)

1. *Tomentosa*. Near Rio de Janeiro. *Shrub.*

CL. Balfouria. *Cor.* infundibulif. *Faux* coronata, tubulo crenulato. *Limbi* laciniæ rectæ, æquilateres. *Stam.* semi-exserta, fauci inserta. *Anth.* sagittatæ, medio stigmati cohærentes, mucronatæ. *Ovar.* 2-locul. *Stylus* 1, filiformis, apice dilatato. *Stig.* angulatum. *Squamulæ* 10 basi calycis extra corollam insertæ: hypogynæ nullæ. *Follic.* - - - (*Wern. Trans.* i. p. 59.)

1. *Saligna*. New Holland. *Shrub.*

CLI. Carmonea. *Cal.* persistens, 5-partitus. *Cor.*

Class V. Pentandria.

læves, 10, pendulæ. *Corona staminea* simplex, 5-phylla: foliolis tubo filamentorum longitudinaliter adnatis: basi recurva. *Cor.* subcampanulata.

1. *Procera*. Persia. *Shrub.*
2. *Gigantea*. East Indies. *Shrub.*

Species 1. is the Asclepias *procera*, and species 2. the Asclepias *gigantea*, of Willdenow. See *Wern. Trans.* i. p. 28.

CLXXI. Xysmalobium. Asclepiadea. *Massæ pollinis* læves, 10, pendulæ. *Corona staminea* simplex, 10-partita; laciniis alternis minutis. *Cor.* patens. *Folliculi* ramentacei.

1. *Undulatum*. 2. *Grandiflorum*.

Both of these species are given by Willdenow under *Asclepias*. with the same specific names. See Brown, *Wern. Trans.* i. p. 27.

CLXXII. Gomphocarpus. Asclepiadea. *Massæ pollinis* læves, 10, pendulæ. *Corona staminea* simplex, 5-phylla: foliolis cucullatis utrinque unidentatis. *Cor.* reflexa. *Folliculi* echinati spinis innocuis.

1. *Arborescens*. 2. *Crispus*.
3. *Fruticosus*. 4. *Setosus*.

All these species are given under *Asclepias* by Willdenow. See Brown, *Wern. Trans.* i. p. 26.

CLXXIII. Gonolobus, or Gonolobium. Asclepiadea. *Massæ pollinis* læves, 10, transversæ. *Cor.* subrotata. *Sem.* comosa.

This new genus is formed from the genus Cynanchum. "Cynanchum maritimum, *Linn.*" says Mr Brown; "suberosum, *Linn.;* crispiflorum, *Hort. Kew.* belong to this genus; and I suppose also C. *planiflorum*, *grandiflorum*, *rostratum*, *nigrum*, *racemosum*, *Carolinense*, *obliquum*, *hirtum*, *prostratum*, and *undulatum*, of Willdenow's *Spec. Plant.:* These, however, I have not determined, and the whole genus requires to be re-examined." See *Wern. Trans.* i. p. 24.

Persoon includes under his subgenus Gonolobium,

1. *Macrophyllum*. Woods of Carolina. (*Michaux*)
2. *Hirsutum*. Woods of Carolina.
3. *Læve*. Banks of the Mississippi.
4. *Obtusifolium*. (In the *Herbarium* of Richard.)
5. *Planiflorum*. Carthagena.
6. *Album*. Peru. (*Cavanilles.*)

CLXXIV. Marsdenia. Asclepiadea. *Massæ pollinis* læves, 10, erectæ. *Anth.* membrana terminatæ. *Corona staminea* 5-phylla: foliolis compressis, indivisis, intus edentulis.

1. *Velutina*. New Holland.
2. *Tinctoria*. Sumatra.
3. *Viridiflora*. New Holland.
4. *Clausa*. Jamaica.
5. *Suaveolens*. New Holland.
6. *Cinerascens*. New Holland.
7. *Erecta*. (*Cynanchum erectum*).
8. *Rostrata*. New Holland.

"This genus," says Mr Brown, "differs from *Pergularia*, chiefly in the want of the inner laciniæ of the corona: It is therefore an arbitrary separation, made principally to obtain clearer characters for both. The two species (7, 8) with an elongated stigma are perhaps not truly of this genus, but, if separated from it, must form each a distinct genus." (*Wern. Trans.*)

CLXXV. Hoya. Asclepiadea. *Massæ pollinis* læves, 10, erecto-conniventes. *Anth.* membrana terminatæ. *Corona stamineà* 5-phylla: foliolis depressis, angulo interiore producto in dentem antheræ incumbentem. *Cor.* rotata.

1. *Carnosa*. Tropical parts of Asia, and in New Holland. *Shrub.*
2. *Viridiflora*. Groves of Ceylon. *Shrub.*

Species 1. is the Asclepias *carnosa*, and species 2. the Asclepias *volubilis* of Willdenow. "*Hoya carnosa*," says Mr Brown, "probably includes several species, which can only be determined from living specimens: it is also to be considered as the type of the genus *Hoya viridiflora*, differing in some degree in the structure of its corona, and considerably in habit." (*Wern. Trans.* i. p. 15.)

CLXXVI. Ceropegia. *Cor.* tubo e basi ventricosa cylindraceo; limbi laciniis ligularibus. *Columna fructificationis* inclusa. *Corona stam.* duplex, *exterior* abbreviata, 5-loba: *interior* 5 phylla, foliolis ligularibus, indivisis, lobis exterioris oppositis. *Anth.* apice simplices. *Massæ pollinis* erectæ, basi affixæ, marginibus simplicibus. *Stig.* muticum. *Folliculi* cylindracei, læves. *Sem.* comosa. (R. Brown, *Wern. Trans.* i. p. 10.)

To this genus belong Sp. 1, 2, 3, 4, 5, 6, of *Ceropegia*, p. 159.; and also two undescribed species.

CLXXVII. Huernia. *Cor.* campan. limbo 10-fido, laciniis accessoriis nanis, dentiformibus. *Columna fructificationis* inclusa. *Corona stam.* duplex; *exterior* quinquefida, laciniis bifidis: *interior* 5-phylla, foliolis e basi gibbosâ subulatis, indivisis, laciniis exterioris alternantibus. *Anth.* apice simplices. *Massæ pollinis* erectæ, basi affixæ, altero margine cartilagineo-pellucido. *Stig.* muticum. *Folliculi* subcylindracei, læves. *Sem.* comosa. (R. Brown, *Wern. Trans.* i. p. 11.)

Sp. 43—49 of *Stapelia*, p. 157. belong to this genus. Mr Brown has examined only Sp. 43, 45, 46, from which the character is formed.

CLXXVIII. Piaranthus. *Cor.* campan. 5-fida, carnosa. *Columna fructificationis* inclusa. *Corona stam.* simplex 5-phylla, foliolis dorso dentatis. *Anth.* apice simplices. *Massæ pollinis* erectæ, basi affixæ, altero margine cartilagineo-pellucido. *Stig.* muticum. *Follic.* - - - (*Wern. Trans.* i. p. 12.)

"The want of the external corona," says Mr Brown, "renders it necessary to separate from Stapelia and Huernia this genus; of which the only two certain species are *Stapelia punctata* and *pulla* of Masson."

CLXXIX. Stapelia. *Cor.* rotata, 5-fida, carnosa. *Columna fructificationis* exserta. *Corona stam.* duplex, utraque in variis varia; interior quandoque obsoleta. *Anth.* apice simplices. *Massæ pollinis* basi affixæ, altero margine cartilagineo-pellucido. *Stig.* muticum. *Follic.* subcylindracei, læves. *Sem.* comosa.

Beside several species of the genus Stapelia, p. 157. this genus contains several unpublished ones in the *Banksian Herbarium*. See *Wern. Trans.* i. p. 13.

CLXXX. Caralluma. *Cor.* rotata, profunde 5-fida. *Columna fructificationis* exserta. *Corona stam.* simplici serie 10 phylla; foliolis quinque antheris oppositis indivisis; reliquis. bipartitis subulatis. *Anth.* apice simplices. *Massæ pollinis* erectæ, basi affixæ, marginibus simplicibus. *Stig.* muticum. *Follic.* graciles, læves. *Sem.* comosa.

*11. *Bracteata.* St Vincents. *Shrub.*

Sp. 8, 9, 10, are given by Persoon under the subgenus *Pourretia.* *Cal.* infero, 3-part. *Anth.* incumbentibus linearibus. *Caps.* valvis septiferis.

604. TILLANDSIA. *Cal.* 3-fidus, persistens. *Cor.* 3-fida, campanulata. *Caps.* 1-locul. *Sem.* comosa.

1. *Utriçulata.* On the trees of South America. *Peren.*
2. *Serrata.* South America.
3. *Lingulata.* On trees of South America.
4. *Tenuifolia.* On trees of S. America. *Peren.*
5. *Flexuosa.* On trees in Jamaica and Carthagena. *Peren.*
6. *Setacea.* On the trees of Jamaica. *Peren.*
7. *Paniculata.* South America.
8. *Fasciculata.* On trees in Jamaica. *Peren.*
9. *Nutans.* Mountains of Jamaica. *Peren.*
10. *Polystachya.* Warm parts of America. *Per.*
11. *Monostachya.* South America.
12. *Pruinosa.* Jamaica. *Peren.*
13. *Canescens.* Jamaica. *Peren.*
14. *Angustifolia.* Jamaica and Hispaniola. *Shrub.*
15. *Recurvata.* Jamaica.
16. *Usneoides.* Virginia, Jamaica, and Brasil.

*17. *Tetrantha.* On trees and stones in the Andes.
*18. *Rubra.* Near Tarma.
*19. *Maculata.* On trees and stones in the Andes.
*20. *Biflora.* On trees and stones in the Andes. *Peren.*
*21. *Parviflora.* *Peren.*
*22. *Heptantha.* Warm parts of Peru.
*23. *Purpurea.* Stony parts of Peru.
*24. *Sessiliflora.* Warm parts of Peru. *Peren.*
*25. *Capillaris.* Warm parts of Peru.
*26. *Virescens.*

Sp. 17—26. See *Flor. Peruv.* iii. p. 39.

606. BURMANNIA. *Cal.* prismaticus, coloratus, 3-fidus : angulis membranaceis. *Pet.* 3. *Caps.* 3-locul. recta. *Sem.* minuta.

1. *Disticha,* or *Distachya.* Ceylon and New Holland. *Peren.*
2. *Biflora.* Marshes in Virginia.

*3. *Juncea.* New Holland.

See Brown's *Prodromus,* p. 265.

607. TRADESCANTIA. *Cal.* 3-phyllus. *Pet.* 3. *Fil.* villis articulatis. *Caps.* 3-locul.

1. *Virginica.* Virginia. *Peren.*
2. *Crassifolia.* Mexico. *Peren.*
3. *Erecta.* Mexico. *Ann.*
4. *Zanonia.* Mts. in Jamaica and Guiana. *Per.*
5. *Discolor.* At the Gulf of Mexico. *Peren.*
6. *Malabarica.* Malabar. *Peren.*
7. *Nervosa.* Surat? *Peren.*
8. *Divaricata.* Guiana, Cayenne, and Trinidad.
9. *Geniculata.* South America. *Peren.*
10. *Monandra.* Mountains of Hispaniola. *Ann.*
11. *Multiflora.* Mts. of Jamaica.
12. *Cordifolia.* High mts. of Jamaica. *Ann.*
13. *Procumbens.* In the Caraccas. *Peren.*
14. *Axillaris.* India. *Ann.*
15. *Formosa.* Cape of Good Hope.
16. *Crustata.* Ceylon. *Ann.*
17. *Papilionacea.* India. *Ann.*

*18. *Rosea.* South Carolina. *Ann.* (*Mich.*)
*19. *Latifolia.* Hills of Peru. *Ann.* (*Fl. Peruv.*)

Sp. 4. is given by Persoon under the subgenus ZANONIA. *Synopsis,* i. p. 347.

686. STEPHANIA. *Cal.* campanulatus bilobus. *Cor.* 4-pet. *Stam.* bina inferiora longiora. *Germen* pedicellatum. *Stylus* 0. *Stig.* capitatum. *Capsula?*

1. *Cleomoides.* Caraccas. *Shrub.*

‡690. FRANKENIA. *Cal.* 5-fidus, infundibulif. *Pet.* 5. *Stig.* 6-part. *Caps.* 1-locul. 3-valvis.

1. *Lævis.* England and other parts of Europe, and Astracan. *Peren.*
2. *Nothria.* Cape of Good Hope. *Shrub.*
3. *Hirsuta.* Apulia, Candia, Siberia. *Peren.*
4. *Pulverulenta.* England, Narbonne, Italy, and the shores of Apulia. *Ann.*

*5. *Corymbosa.* Near Arzeau. ⎫ Desfont. *Atl.*
*6. *Thymifolia.* Barbary. ⎭ p. 315.
*7. *Microphylla.* S. America. *Shrub.* (*Cavan.*)

675. COSSIGNEA. *Cal.* inferus, 5-part. *Cor.* 4-seu 5-pet. *Caps.* 3-locul. apice dehiscens, loculis subtrispermis.

1. *Trephylla.* Island of Bourbon. *Shrub.*
2. *Pinnata.* Island of Mauritius. *Shrub.*

684. LORANTHUS. *Germen* inferum. *Cal.* 0. *Cor.* 6-fida, revoluta. *Stam.* ad apices petalorum. *Bacca* 1-sperma.

1. *Scurrula.* China. *Shrub.*
2. *Tetrapetalus.* New Zealand. *Shrub.*
3. *Glaucus.* Cape of Good Hope. *Shrub.*
4. *Biflorus.* East Indies. *Shrub.*
5. *Parvifolius.* High mts. of Jamaica. *Shrub.*
6. *Falcatus.* Madras. *Shrub.*
7. *Uniflorus.* Woods of St Domingo. *Shrub.*
8. *Europæus.* Austria and Siberia. *Bien. Shr.*
9. *Longibracteatus.* Peru. *Shrub.*
10. *Buddlejoides.* East Indies. *Shrub.*
11. *Nodosus.* Peru. *Shrub.*
12. *Clavatus.* Madagascar. *Shrub.*
13. *Longiflorus.* East Indies. *Shrub.*
14. *Elasticus.* East Indies. *Shrub.*
15. *Americanus.* Woody coasts of America. *Shr.*
16. *Emarginatus.* Mts. of Hispaniola. *Shrub.*
17. *Occidentalis.* Woody parts of Amer. *Shrub.*
18. *Loniceroides.* Woody parts of Asia. *Shrub.*
19. *Penduncululatus.* Woody coasts of Carthagena. *Shrub.*
20. *Sessilis.* Woods of Carthagena. *Shrub.*
21. *Marginatus.* Brasil. *Shrub.*
22. *Stelis.* Woody parts of Cumana. *Shrub.*
23. *Pauciflorus.* Woods in the interior of Jam. *Shr.*
24. *Brasiliensis.* Brasil. *Shrub.*
25. *Pentandrus.* India. *Shrub.*
26. *Spicatus.* Carthagena. *Shrub.*

*27. *Cuneifolius.* Valleys of Peru. *Shrub.*
*28. *Dichotomus.* Peruvian Andes.
*29. *Acutifolius.* Warm parts of Peru.
*30. *Sarmentosus.* Groves of the Andes.
*31. *Acuminatus.* Groves of the Andes.
*32. *Retroflexus.* Groves of the Andes.
*33. *Lanceolatus.* Groves of the Andes.
*34. *Punctatus.* Groves of the Andes.
*35. *Heterophyllus.* Woods of Chili.
*36. *Grandiflorus.* Peruvian Andes.
*37. *Glaucus.* Peru.
*38. *Ellipticus.* Peru.
*39. *Tetrandrus.* Woods of Chili. *Shrub.*
*40. *Verticillatus.* Peru.
*41. *Ovalifolius.* Peru.
*42. *Polystachyus.* Peru.
*43. *Cucullaris.* Guiana. *Shr.* (Lamarck, *Journ. d'Hist. Nat.* No. 12, p. 444.)

Sp. 27—42. See *Flor. Peruv.* iii. p. 46—50.

687. HILLIA. *Cal.* duplex, inferus, 6-phyllus, superus 2-4 phyllus. *Cor.* longissima contorta. *Caps.* infera, 2-locul. polysperma. *Sem.* comosa.

1. *Longiflora.* Jamaica and Brasil. *Shrub.*

2. *Tetrandra.* High mts. of Jamaica. *Shrub.*

685. SCHRADERA. *Involucr.* universale multiflorum. *Cal.* superus urceolatus. *Cor.* 5-6-fida campanulata, fauce hirsuta. *Bacca* polysperma.

1. *Capitata.* Montserrat. *Shrub.*

2. *Cephalotes.* Mountains in Jamaica. *Shrub.*

This genus is given under PENTANDRIA by Persoon.

672. DUROIA. *Cal.* superus cylindricus truncatus. *Cor.* tubus cylindricus; *limbo* 6-partit. tubo longitudine. *Pomum* hispidum.

1. *Ereopila.* Surinam. *Shrub.*

This plant is given by Persoon under the genus *Genipa.*

671. RICHARDIA. *Cal.* 6-part. *Cor.* 1-pet. subcylindrica. *Sem.* 3.

1. *Scabra.* Vera Cruz. *Peren.*

* 2. *Pilosa.* Near Lima. (*Fl. Per.* iii. p. 50.)

665. TACCA. *Cal.* 6-part. *Cor.* 6-pet. calyci inserta antherifera. *Stig.* stellatum. *Bacca* sicca 6-angul. polysperma infera.

1. *Pinnatifida.* East Indies, Otaheite, and New Holland. *Peren.*

See Brown's *Prodromus*, p. 340.

676. BARBACENIA. *Cal.* superus 6-dentatus. *Cor.* 6-pet. *Filam.* petaliformia dentata. *Caps.* glandulosa bivalvis polysperma.

1. *Brasiliensis.* Brasil.

‡ 677. BERBERIS. *Cal.* 6-phyllus. *Pet.* 6. ad ungues glandulis 2. *Stylus* 0. *Bacca* 2-sperma.

1. *Vulgaris.* Britain, Eur. the East, N. Amer. *Shr.*

2. *Illicifolia.* Fissures of rocks, in Terra del Fuego. *Shrub.*

3. *Microphylla.* Terra del Fuego. *Shrub.*

4. *Cretica.* Candia. *Shrub.*

5. *Sibirica.* High mountains of Siberia. *Shrub.*

* 6. *Monosperma.* In Tarma. *Shrub.*

* 7. *Flexuosa.* Warm pts. of the Andes. *Shrub.*

* 8. *Lutea.* Warm pts. of the Andes. *Shr.*

* 9. *Virgata.* Groves of the Andes.

* 10. *Latifolia.* Peru.

* 11. *Tomentosa.* Conception.

See *Fl. Peruv.* iii. p. 52.

* 12. *Ruscifolia.* Monte Video.

* 13. *Buxifolia.* Monte Video.

* 14. *Empetrifolia.* Straits of Magellan.

See Lamarck, *Ill.* t. 223.

* 15. *Inermis.* Straits of Magellan. (*Jussieu.*)

644. LEONTICE. *Cor.* 6-pet. *Nect.* 6-phyll. unguibus corollæ insidens, limbo patens. *Cal.* 6-phyll. deciduus.

1. *Chrysogonum.* Greece. *Peren.*

2. *Leontopetalum.* Apulia, Tuscany, Candia. *Peren.*

3. *Vesicaria.* In Siberia.

4. *Altaica.* Altaian Mountains. *Peren.*

679. NANDINA. *Cal.* inferus polyphyllus imbricatus. *Cor.* 6-pet. *Bacca* exsucca disperma.

1. *Domestica.* Japan. *Shrub.*

674. PRINOS. *Cal.* 6-fid. *Cor.* 1-pet. rotata. *Bacca* 6-sperma.

1. *Verticillatus.* Marshy parts of Virginia. *Shr.*

2. *Montanus.* The high mts. of Jamaica. *Shrub.*

3. *Dioicus.* Island of Montserrat. *Shrub.*

4. *Nitidus.* Mount Serrat. *Shrub.*

5. *Glaber.* Canada. *Shrub.*

6. *Lucidus.* *Shrub.*

7. *Sideroxyloides.* Caribbees, St Christopher's, and Montserrat. *Shrub.*

678. PSATHURA. *Cal.* superus 6-dent. *Cor.* campan. 6-fida intus barbata. *Stig.* lamellatum. *Drupa* sicca striata 6-locul. loculis 1-spermis.

1. *Borbonica.* Island of Bourbon. *Shrub.*

688. ISERTIA. *Cal.* superus 6-dent. *Cor.* infundibulif. 6-fida. *Stig.* 6 fid. *Pomum* 6-locul. polyspermum.

1. *Coccinea.* Woods of Cayenne and Guiana. *Shr.*

2. *Parviflora.* Island of Trinidad. *Shrub.*

689. CANARINA. *Cal.* 6-phyll. *Cor.* 6-fida, campan. *Stig.* 6. *Caps.* infera; 6-locul. polysperma.

1. *Campanula.* Canary Islands. *Shrub.*

673. ACHRAS. *Cal.* 6-phyll. *Cor.* ovata, 6 fida: squamis totidem alternis interioribus pomum 10-locul. *Sem.* solitaria hilo marginali, apiceque unguiculato. (*Stam.* 4—6, *Persoon.*)

1. *Dissecta.* Philippine and Friendly Islands, particularly Tongataboo, Malabar, Guiana, and Mauritius. *Shrub.*

2. *Mammosa.* S. America, Cuba, Jamaica, and Carthagena. *Shrub.*

3. *Sapota.* South America. *Shrub.*

* 4. *Lucuma.* Peru and Chili.

* 5. *Caimito.* Andes.

See *Flor. Peruv.* iii. p. 17.

* 6. *Australis.* New South Wales. (Brown.)

This genus is given under PENTANDRIA by Persoon. See Brown's *Prodromus*, p. 58.

683. CAPURA. *Germ.* superum. *Cal.* 0. *Cor.* 6-fida. *Stam.* intra tubum. *Stig.* globosum. *Bacca.*

1. *Purpurata.* India. *Shrub.*

SECT. II. *Flowers having the Calyx doubled; furnished with a Corolla, and with Spathes.*

666. CORYPHA. *Cal.* 3-phyll. *Cor.* 3-pet. *Bacca* 1-sperma. *Sem.* globosum magnum osseum.

1. *Umbraculifera.* India. *Shrub.*

2. *Rotundifolia.* The Molucca Islands. *Shrub.*

* 3. *Australis.* New South Wales.

See Brown's *Prodromus*, p. 267.

667. LICUALA. *Cal.* 3-partit. *Cor.* 3-partit. *Nect.* truncatum sertiforme. *Drupa* 1-sperma.

1. *Spinosa.* The Molucca Islands. *Shrub.*

608. MNASIUM. *Spatha* 2-valvis multiflora. *Cal.* 3-partit. *Cor.* 1-pet., tubo brevissimo, tridentata. *Anth.* foliolo terminatæ. *Stig.* 3 spiraliter-contorta.

1. *Paludosum.* Boggy woods of Guiana. *Peren.*

SECT. III. *Flowers having Spathes and Glumes.*

601. URANIA. *Cal.* 0. *Cor.* tripetala. *Nect.* 2-phyll. foliolo altero bifido. *Caps.* infera trilocul. polysperma. *Sem.* biserialia arillo tecta.

1. *Speciosa.* Marshy parts of Madagascar. *Shr.*

610. HAEMANTHUS. *Involucr.* polyphyll. multiflorum. *Cor.* 6-partit. supera. *Bacca* 3-locul.

1. *Coccineus.*

2. *Coarctatus.*

3. *Puniceus.*

4. *Multiflorus.*

5. *Tigrinus.*

6. *Quadrivalvis.*

7. *Pubescens.*

8. *Ciliaris.*

9. *Albiflos.*

10. *Toxicarius.*

11. *Lanceæfolius.*

12. *Carinatus.*

13. *Pumilio.*

14. *Spiralis.*

All perennial, and from the Cape.

* 8. *Pedunculatum*. New South Wales. } Brown's
* 9. *Angustifolium*. New Holland. } *Prodr.*
* 10. *Venosum*. New Holland. } p. 297.

621. Cyrtanthus. *Cor.* supera tubulosa clavata 6-fida: laciniæ ovato-oblongæ. *Fil.* tubo inserta apice conniventia.
1. *Angustifolius*. 2. *Ventricosus*. 3. *Obliquus*. All perennial, and from the Cape of Good Hope.

620. Eustephia. *Cor.* supera tubulosa cylindracea bifida. *Nectar.* foveæ 6 in tubo corollæ. *Fil.* tricuspidata, discreta.
1. *Coccinea*. *Peren.*

619. Agapanthus. *Cor.* infera infundibuliformis regularis sexpartita.
1. *Umbellatus*. Cape of Good Hope. *Peren.*
2. *Ensifolius*. Cape of Good Hope. *Peren.*

6[illegible]. Pontederia. *Cor.* 1-pet. 6-fida, bilabiata. *Stam.* 3 apici seu tubo corollæ inserta. *Caps.* 3-locul.
1. *Rotundifolia*. Surinam. *Peren.*
2. *Azurea*. Ditches in Jamaica. *Peren.*
3. *Vaginalis*. Watery parts E. Indies. *Peren.*
4. *Limosa*. Jamaica and Hispaniola. *Peren.*
5. *Cordata*. Watery parts of Virginia. *Peren.*
6. *Hastata*. India. *Peren.*
* 7. *Dilatata*. E. Indies. *Peren.*

624. Bulbocodium. *Cor.* infundibulif. 6-pet.: unguibus angustis staminiferis. *Caps.* supera.
1. *Vernum*. Spain and Russia. *Peren.*

615. Tulbagia. *Cor.* infundibulif. *Limbo* 6-fido. *Nect.* coronans faucem, 3-phyll.: foliolis bifidis magnitudine limbi. *Caps.* supera.
1. *Alliacea*. Cape of Good Hope. *Peren.*
2. *Cepacea*. Cape of Good Hope. *Peren.*

‡ 626. Allium. *Cor.* 6-part. patens. *Spatha* multiflora. *Umbella* congesta. *Caps.* supera.
1. *Ampeloprasum*. England and in the East. *Per.*
2. *Porrum*. Vineyards of Switzerland. *Bien.*
3. *Lineare*. Siberia. *Peren.*
4. *Suaveolens*. Austria. *Peren.*
5. *Deflexum*. *Peren.*
6. *Rotundum*. South of Europe, Thuringia, and the Palatinate. *Peren.*
7. *Victorialis*. Switzer. Italy, Aust. Silesia. *Per.*
8. *Subhirsutum*. Africa, Italy, Spain, and in the East. *Peren.*
9. *Magicum*. *Peren.*
10. *Obliquum*. Siberia. *Peren.*
11. *Ramosum*. Siberia.
12. *Tataricum*. Siberia. *Peren.*
13. *Roseum*. Vineyards of Montpellier and Piedmont. *Peren.*
14. *Sativum*. Sicily. *Peren.*
15. *Scorodoprasum*. Oeland, Denmark, south of Hungary, and Germany. *Peren.*
16. *Arenarium*. Eng. and other pts. of Eur. *Per.*
17. *Carinatum*. England, Germany, Switzerland, and Carniola. *Peren.*
18. *Sphærocephalon*. Italy, Siberia, Switzerland, and Germany. *Peren.*
19. *Parviflorum*. South of Europe. *Peren.*
20. *Pallasii*. Siberia. *Peren.*
21. *Descendens*. Switzerland. *Peren.*
22. *Moschatum*. France and Spain.
23. *Flavum*. Montpellier and Austria. *Peren.*
24. *Pallens*. Italy, Spain, Montpellier, and South of Hungary. *Peren.*
25. *Paniculatum*. Siberia, Austria, Italy, Switzerland, Carniola, and in the East. *Peren.*
26. *Vineale*. England, Germ. and Switzer. *Per.*
27. *Oleraceum*. England, Sweden, Germany, Switzerland, and Ingria. *Peren.*
28. *Nutans*. Siberia. *Peren.*
29. *Ascalonicum*. Palestine. *Peren.*
30. *Senescens*. Siberia, Silicia, Silesia, and Switzerland. *Peren.*
31. *Illyricum*. In Austria. *Peren.*
32. *Odorum*. South of Europe. *Peren.*
33. *Inodorum*. Carolina. *Peren.*
34. *Angulosum*. Siberia, and wet parts of Germany. *Peren.*
35. *Striatum*. Cape of Good Hope. *Peren.*
36. *Narcissiflorum*. Mountains in the south of France. *Peren.*
37. *Pedemontanum*. Piedmontese mountains. *Per.*
38. *Nigrum*. Algiers, and Provence. *Peren.*
39. *Canadense*. Canada. *Peren.*
40. *Ursinum*. Eng. and other pts. of Eur. *Per.*
41. *Clusianum*. South of Europe. *Peren.*
42. *Triquetrum*. Spain, and about Narbonne. *Per.*
43. *Cepa*. *Peren.*
44. *Moly*. In Hungary, Mount Baldo, Montpellier, and the Pyrenees. *Peren.*
45. *Tricoccum*. North America. *Peren.*
46. *Fistulosum*. Siberia. *Peren.*
47. *Schoenoprasum*. England, mountains of Siberia, and in Oeland. *Peren.*
48. *Sibiricum*. Siberia, and the mountains of Silesia. *Peren.*
49. *Stellerianum*. Siberia, at the river Jenisey. *Per.*
50. *Capillare*. Valentia. *Peren.*
51. *Tenuissimum*. Siberia.
52. *Gracile*. Jamaica. *Peren.*
53. *Chamæ-Moly*. Italy and Spain. *Peren.*
* 54. *Graminifolium*. Near Dax in Fran. (*Persoon.*)
* 55. *Appendiculatum*. Pyrenees. (*Ramond.*)
* 56. *Compactum*. Near Paris. (*Thuill.*)
* 57. *Odoratissimum*. Near Ofsa and Tozzer. *Peren.* (*Desfont.*)
* 58. *Fragrans*. Africa. (*Ventenat.*)
* 59. *Mutabile*. South of Georgia. (*Michaux.*)
* 60. *Setaceum*. Hungary. (*Plant. Hung.* p. 70.)

636. Curculigo. *Cor.* 6-pet. plana. *Spatha* 1-valvis. *Stylus* brevissimus. *Stig.* 3-divergentia. *Caps.* 1-locul. 4-sperma spongiosa rostrata.
1. *Orchioides*. East Indies. *Peren.*
* 2. *Plicata*. Cape of Good Hope. *Peren.*
* 3. *Brevifolia*. East Indies. *Peren.*
* 4. *Latifolia*. Porto Pinang. *Peren.*
* 5. *Recurvata*. East frontier of Bengal. *Peren.*
* 6. *Ensifolia*. New Holland. (*Brown.*)

The following generic character of *Curculigo* is given by Mr Ker in the *Botanical Magazine*:—"*Cor.* supera, monopetala: limbo 6-partito. *Bacca* polysperma, coronata inferiori corollæ parti persistente." Species 2. is the *Gethyllis plicata* of Willdenow. See Brown's *Prodr.* p. 289.

625. Aphyllanthes. *Cor.* 6-pet. *Fil.* fauci corollæ inserta. *Caps.* supera. *Glumæ* calycinæ 1-valves imbricatæ.
1. *Monspeliensis*. Montpellier in stony, barren, and mountainous parts near Castelneuf.

611. Massonia. *Cor.* infera limbo 6-part. *Fil.* collo tubi imposita. *Caps.* 3-alata. 3-locul. polysperma.

1. *Latifolia*.	4. *Echinata*.
2. *Angustifolia*.	* 5. *Muricata*.
3. *Undulata*.	* 6. *Scabra*.

*7. *Pauciflora.* *9. *Violacea.*
*8. *Ensifolia.*

All perennial, and from the Cape of Good Hope.

637. Hypoxis. *Cor.* 6-part. persistens, supera. *Caps.* basi angustior. *Spatha* 2-valvis.

1. *Erecta.* Virginia, Canada. *Peren.*
2. *Sobolifera.* Cape of Good Hope. *Peren.*
3. *Villosa.* Cape of Good Hope. *Peren.*
4. *Decumbens.* Sandy hills of Jamaica. *Peren.*
5. *Obliqua.* 9. *Ovata.*
6. *Aquatica.* 10. *Veratrifolia.*
7. *Minuta.* 11. *Stellata.*
8. *Alba.* 12. *Serrata.*
13. *Juncea.* Turfy parts of Carolina. *Peren.*
14. *Fascicularis.* Aleppo. *Peren.*
15. *Sessilis.* Carolina. *Peren.*
16. *Linearis*, or *aurea.* (*Andrews*, t. 171.)
17. *Pratensis.* *19. *Marginata.*
18. *Hygrometrica.* *20. *Glabella.*

Species 5—13 perennial, and from the Cape of Good Hope. Species 17—20 from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 288.

Sect. IV. *Flowers Naked.*

5. Xerophyta. *Cor.* 6-part. æqualis, 3 laciniis exterioribus angustioribus. *Stig.* clavatum. *Caps.* infera 3-locul. polysperma.

1. *Pinifolia.* Madagascar. *Shrub.*

1. Alstroemeria. *Cor.* 6-pet. subbilabiata; petalis inferioribus basi tubulosis. *Stam.* declinata.

1. *Pelegrina.* Peru and Lima. *Peren.*
2. *Pulchella.* South America.
3. *Ligtu.* Lima. *Peren.*
4. *Salsilla.* Lima.
5. *Ovata.* Lima. *Peren.*
6. *Multiflora.* South America.
*7. *Revoluta.* *17. *Fimbriata.* *Peren.*
*8. *Versicolor.* *Peren.* *18. *Latifolia.* *Peren.*
*9. *Hæmantha.* *19. *Tomentosa.* *Peren.*
*10. *Lineatiflora.* *20. *Setacea.* *Peren.*
*11. *Distichifolia.* *Per.* *21. *Denticulata.* *Per.*
*12. *Secundifolia.* *22. *Purpurea.*
*13. *Anceps.* *23. *Macrocarpa.*
*14. *Rosea.* *Per.* *21. *Cordifolia.*
*15. *Crocea.* *25. *Formosa.*
*16. *Bracteata.*

Sp. 7—27 from Peru. (See *Fl. Peruv.* iii. p. 59.)

55. Lanaria. *Cor.* supera lanata filamentis longior: limbo 6-part. patulo. *Peric.* 3-locul.

1. *Plumosa.* Cape of Good Hope. *Peren.*

62. Hemerocallis. *Cor.* campan. tubo cylindrico. *Stam.* declinata.

1. *Flava.* Fields of Switzerland, Siberia, and Hungary. *Peren.*
2. *Fulva.* China. *Peren.*
3. *Lancifolia.* Japan. *Peren.*
4. *Japonica*, or *Alba.* Japan. *Peren.*
*5. *Graminea.* Siberia. *Peren.* (*Andrews.*)
*6. *Cærulea.* Japan. *Peren.* (*Andrews.*)

Willdenow makes species 5. a variety of species 1., and species 6. a variety of species 4. (See *Botan. Mag.* 873, 894.)

660. Agave. *Cor.* erecta supera. *Fil.* corolla longiora, erecta.

1. *Americana.* Warm parts of America. *Shrub.*
2. *Vivipara.* America. *Shrub.*
3. *Virginica.* Virginia. *Peren.*
4. *Cubensis*, or *odorata.* Island of Cuba. *Shrub.*
5. *Lurida.* South America. *Shrub.*
6. *Tuberosa.* In America. *Shrub.*
7. *Fœtida.* Curaçoa. *Shrub.*

Persoon ranks species 4—7 under the subgenus Furcræa.

635. Gethyllis. *Cor.* 6-part. tubo filiformi longissimo. *Cal.* 0. *Bacca* clavata radicalis 1-locul.

1. *Spiralis.* 4. *Plicata.*
2. *Ciliaris.* 5. *Lanceolata.*
3. *Villosa.*

All perennial, and from the Cape.

659. Aloe. *Cor.* erecta, ore patulo, fundo nectarifero. *Fil.* receptaculo inserta.

1. *Dichotoma.* Cape of Good Hope. *Shrub.*
2. *Spicata.* Cape of Good Hope. *Shrub.*
3. *Perfoliata*, or *Brevifolia.* E. and W. Indies, Africa, Italy, Sicily, and Malta. *Shrub.*
4. *Picta.* Cape of Good Hope. *Shrub.*
5. *Sinuata.* Barbadoes, and Cape of Good Hope. *Shrub.*
6. *Humilis.* Cape of Good Hope. *Shrub.*
7. *Arachnoides.* Cape of Good Hope. *Shrub.*
8. *Margaritifera.* Cape of Good Hope. *Shr.*
9. *Verrucosa.* Cape of Good Hope. *Shrub.*
10. *Carinata.* Africa. *Shrub.*
11. *Maculata.* Cape of Good Hope. *Shrub.*
12. *Lingua.* Cape of Good Hope. *Shrub.*
13. *Plicatilis.* Africa. *Shrub.*
14. *Variegata.* Clayey parts of Ethiopia. *Shr.*
15. *Viscosa.* Cape of Good Hope. *Shrub.*
16. *Spiralis.* Africa. *Shrub.*
17. *Retusa.* Clayey parts of Africa. *Shrub.*
*18. *Vulgaris.* Levant and Barbary. *Shrub.*
*19. *Purpurascens.* Cape of Good Hope. *Shr.*
*20. *Soccotrina.* Cape and Barbadoes. *Shrub.*
*21. *Arborescens.* *27. *Suberecta.*
*22. *Ferox.* *28. *Serrulata.*
*23. *Supralævis.* *29. *Striata.*
*24. *Mitræformis.* *30. *Lineata.*
*25. *Brevifolia.* *31. *Glauca.*
*26. *Depressa.* *32. *Africana.*

Species 22—32 from the Cape.

*33. *Spiralis.* Africa. Cape of Good Hope.
*34. *Pentagona.* Africa. *Shrub.*
*35. *Tortuosa.* *40. *Reticulata.*
*36. *Foliolosa.* *41. *Mirabilis.*
*37. *Rigida.* *42. *Recurva.*
*38. *Albicans.* *43. *Translucens.*
*39. *Cymbiformis.*

Species 35—43, from the Cape.

For an account of these new species, see Haworth, *Linn. Soc. Trans.* vii. 20, &c.

657. Aletris. *Cor.* infundibulif. rugosa. *Stam.* inserta laciniarum basi. *Caps.* 3-locul. loculis polyspermis.

1. *Farinosa.* North America. *Peren.*
2. *Fragrans.* Africa. *Shrub.*
*3. *Aurea.* Carolina. (*Michaux.*)

656. Veltheimia. *Cor.* tubulosa 6-dent. *Stamina* tubo inserta. *Caps.* membranacea trialata, loculis monospermis.

1. *Viridifolia.* 4. *Pumila.*
2. *Glauca.* *5. *Sarmentosa.*
3. *Uvaria.*

All *Peren.* and from the Cape. See Tritoma.

Class VI. Hexandria

650. POLYANTHES. *Cor.* infundibulif. incurva, æqualis. *Fil.* corollæ fauci inserta. *Germen* in fundo corollæ.
1. *Tuberosa.* Java and Ceylon. *Peren.*
2. *Pygmæa.* Cape of Good Hope. *Peren.*

‡ 649. CONVALLARIA. *Cor.* 6-fida. *Bacca* maculosa, 3-locul.
1. *Majalis.* England and other parts of Europe. *Peren.*
2. *Japonica.* See OPHIOGON. Japan. *Peren.*
3. *Spicata.* Japan. *Peren.*
4. *Verticillata.* Scotland and other parts of Europe. *Peren.*
5. *Polygonatum.* England and other parts of Europe. *Peren.*
6. *Multiflora.* England and other parts of Europe. *Peren.*
7. *Latifolia.* Woods of Austria, and southern parts of Hungary. *Peren.*
8. *Racemosa.* Virginia and Canada. *Peren.*
9. *Stellata.* Canada. *Peren.*
10. *Trifolia.* Woods of Siberia. *Peren.*
11. *Bifolia.* Low meadows, N. of Eur. *Peren.*
* 12. *Umbellulata.* Alleghany mountains. *Peren.* (*Michaux.*)

Persoon ranks species 4, 5, 6, 7, 12, under the subgenus POLYGONATUM. *Cor.* infundibulif. and species 8—12, under the subgenus, MAJANTHEMUM. *Cor.* rotatis.

648. SANSEVIERA. *Cor.* infera 1-pet. tubo filiformi limbo 6-part. revoluto. *Stam.* limbo inserta. *Bacca* 1-sperma.
1. *Guineensis.* Guinea. *Peren.*
2. *Zeylanica.* Ceylon. *Peren.*
3. *Lanuginosa.* Sandy parts of India. *Peren.*
* 4. *Carnea.* China. *Peren.*

‡ 652. HYACINTHUS. *Cor.* campan. 6-fida: pori 3 melliferi germinis.
1. *Non scriptus.* England, France, Spain, Italy, Switzerland, and Persia.
2. *Cernuus.* Spain. *Peren.*
3. *Amethystinus.* Spain? and Russia. *Peren.*
4. *Orientalis.* Asia and Africa. *Peren.*
5. *Flexuosus.*
6. *Corymbosus.*
7. *Convallarioides.*
8. *Brevifolius.*

Sp. 5—8 perennial, and from the Cape
9. *Romanus.* Fields about Rome.
10. *Muscari.* Asia, also in Europe. *Peren.*
11. *Comosus.* France, and fields in the south of Europe, Switzerland, Germany, Persia.
12. *Botryoides.* Italy, Switzerland, Carniola, Persia. *Peren.*
13. *Racemosus.* South of Europe. *Peren.*
* 14. *Maritimus.* Near ancient Carthage.
* 15. *Parviflorus.* Near ancient Carthage. See Desfont. *Flor. Atl.* i. p. 388.
* 16. *Viridis.* (*Lachenalia viridis* of Willd.)
* 17. *Lividus.* (*Lachenalia serotina* of Willd.)

Species 16, 17, are given by Persoon under the subgenus ZUCCANGNIA.

651. DRIMIA. *Cor.* infera campan. 6-fida, laciniis revolutis. *Stam.* corollæ inserta. *Stig.* capitatum.
1. *Ciliaris.* Cape of Good Hope.
2. *Elata.* Cape of Good Hope. *Peren.*
3. *Pusilla.* Cape of Good Hope. *Peren.*
4. *Undulata* Cape of Good Hope. *Peren.*
5. *Media.* Cape of Good Hope. *Peren.*

Persoon thinks that this genus is not sufficiently distinct from HYACINTHUS.

623. MILLEA. *Cor.* infundib. limbo 6-part. plano. *Anth.* fauci insertæ. *Germ.* pedicellatum. *Caps.* supera.
1. *Biflora.* Mexico. *Peren.*

642. ASPHODELUS. *Cor.* 6-part. *Nect.* ex valvulis 6 germen tegentibus.
1. *Luteus.* Sicily. *Bien.*
2. *Creticus.* Candia.
3. *Ramosus.* Narbonne, Portugal, Spain, Italy, and Carniola. *Peren.*
4. *Albus.* Portugal, Spain, Narbonne, and Croatia. *Peren.*
5. *Fistulosus.* Provence, Spain, and Candia. *Peren.*
6. *Altaicus.* Foot of the Altaic mountains. *Peren.*
7. *Liburnicus.* Istria.
* 8. *Acaulis.* Barbary. (*Desfont.*)

629. EUCOMIS. *Cor.* infera 6-part. persistens patens. *Fil.* basi in nectarium adnatum connata.
1. *Nana.*
2. *Bifolia.*
5. *Regia.*
4. *Undulata.*
5. *Punctata.*
* 6. *Purpureo-caulis.*

All perennial, and from the Cape of Good Hope.

‡ 643. ANTHERICUM. *Cor.* 6-pet. patens. *Caps.* ovata.
1. *Serotinum.* England, Switzerland, and Siberia. *Peren.*
2. *Fragrans.*
3. *Filifolium.*
4. *Flexifolium.*
5. *Filiforme.*
6. *Exuviatum.*
7. *Elongatum.*
8. *Græcum.* In the East. *Peren.*
9. *Planifolium.* Portugal beyond the Tagus. *Peren.*
10. *Squameum.*
11. *Comosum.*
12. *Floribundum.*
13. *Revolutum.*
14. *Ramosum.* South of Europe. *Peren.*
15. *Elatum.*
16. *Falcatum.*
17. *Contortum.*
18. *Vespertinum.*
19. *Graminifolium.*
20. *Japonicum.* Japan, China, and Java.
21. *Longifolium.*
22. *Hirsutum.*
23. *Adenanthera.* New Caledonia.
24. *Reflexum.* *Peren.*
25. *Pilosum.*
26. *Undulatum.*
27. *Triflorum.*
28. *Canaliculatum.*
29. *Albucoides.*
30. *Liliago.* Switzerland, Germany, and France. *Peren.*
31. *Liliastrum.* Mountains of Switzerland. *Per.*
32. *Spirale.* *Peren.*
33. *Frutescens.* *Shrub.*
34. *Rostratum.* *Shrub.*
35. *Alooides.* *Peren.*
36. *Nutans.* *Peren.*
37. *Incurvum.* *Peren.*
38. *Latifolium.* *Per-*
39. *Pugoniforme.* *Per-*
40. *Præmorsum.* *Per-*
41. *Asphodeloides.* Ethiopia. *Ann.*
42. *Longiscapum.* Cape of Good Hope. *Shr.*
43. *Annuum.* Ethiopia. *Ann.*
44. *Hispidum.* *Peren.*
45. *Muricatum.*
46. *Ciliatum.*
47. *Cauda felis.*
48. *Triquetrum.*
49. *Scabrum.*
50. *Cirrhatum.* New Zealand.
51. *Crispum.* Cape of Good Hope.
52. *Ossifragum.* Muddy parts in the north of Europe. *Peren.*

53. *Physodes.*
54. *Pusillum.*
* 55. *Bulbosum.* New South Wales.
* 56. *Semibarbatum.* New Holland and Van Diemen's Island. } *Brown.*

Under this genus Persoon includes only the Sp. 33—51. He gives the rest under Phalangium.

Species 2—7, 10—13, 15—19, 21, 22, 25—29, perennial, and from the Cape. Species 33—40, 44—49, 53, 54, from the Cape. See Brown, *Prodromus*, p. 275.

681. Enargea. *Cal.* 0. *Cor.* 6-pet. petalis alternis basi biglandulosis. *Stig.* simplex. *Bacca* 3-locul. polysperma supera.

1. *Marginata.* Straits of Magellan. *Shrub.*

653. Phormium. *Cor.* 6-pet. infera; petalis 3 interioribus longioribus. *Stam.* adscendentia exserta. *Caps.* oblonga triquetra. *Sem.* compressa.

1. *Tenax.* New Zealand. *Peren.*

654. Lachenalia. *Cor.* 6-pet. infera: petalis 3 interioribus longioribus. *Stam.* erecta. *Caps.* subovata trialata. *Sem.* globosa.

1. *Glaucina.*
2. *Orchioides.*
3. *Pallida.*
4. *Hyacinthoides.*
5. *Angustifolia.*
6. *Contaminata.*
7. *Viridis.*
8. *Serotina.*
9. *Pusilla.*
10. *Patula.*
11. *Fragrans.*
12. *Liliiflora.*
13. *Pustulata.*
14. *Purpureo-cœrulea.*
15. *Violacea.*
16. *Purpurea.*
17. *Lancæfolia.*
18. *Unifolia.*
19. *Hirta.*
20. *Isopetala.*
21. *Tricolor.*
22. *Rubida*, or *Tigrina.*
23. *Punctata.*
24. *Pendula.*
* 25. *Unicolor.*
* 26. *Quadricolor.*

All perennial, and from the Cape of Good Hope.

‡ 639. Ornithogalum. *Cor.* 6-pet. erecta, persistens, supra medium patens. *Fil.* basi dilatata. *Caps.* 3-locul. *Sem.* subrotunda nuda.

1. *Uniflorum.* Mount Sinie, Sopka, and Maloi, in Siberia, among the Altaian Mts. *Peren.*
2. *Striatum.* Siberia. *Peren.*
3. *Bulbiferum.* At the Wolga and Jaik. *Per.*
4. *Spathaceum*, or *Minimum.* Near Hamburgh, and Duchy of Oldenburg. *Peren.*
5. *Bohemicum.* Bohemia. *Peren.*
6. *Luteum.* Eng. and other parts of Eur. *Per.*
7. *Minimum.* England, and other parts of Europe. *Peren.*
8. *Circinatum.* Near Astracan. *Peren.*
9. *Paradoxum.* Cape of Good Hope. *Peren.*
10. *Niveum.* Cape of Good Hope. *Peren.*
11. *Umbellatum.* Germany, France, and in the East. *Peren.*
12. *Pyrenaicum.* England, Switzerland, and Carniola. *Peren.*
13. *Stachyoides.* Southern parts of Europe. *Per.*
14. *Lacteum.*
15. *Ovatum.*
16. *Ciliatum.*
17. *Crenulatum.*
18. *Pilosum.*
19. *Revolutum.*
20. *Conicum.*
21. *Narbonense.* South of Europe. *Peren.*
22. *Latifolium.* Arabia and Egypt. *Peren.*
23. *Altissimum.* Cape of Good Hope. *Peren.*
24. *Scilloides.* Cape of Good Hope. *Peren.*
25. *Lanceobracteatum.* Cape of Good Hope. *Per.*
26. *Japonicum.* Japan, near Jedo, and Nagasaki. *Peren.*
27. *Comosum.* Austria. *Peren.*
28. *Pyramidale.* Portugal. *Peren.*
29. *Tenellum.*
30. *Odoratum.*
31. *Suaveolens.*
32. *Secundum.*
33. *Fuscatum.*
34. *Barbatum.*
35. *Polyphyllum.*
36. *Juncifolium.*
37. *Rupestre.*
38. *Arabicum.* Egypt and Madeira. *Peren.*
39. *Thyrsoides.*
40. *Aureum.*
41. *Coarctatum.*
42. *Caudatum.*
43. *Nutans.* Italy, Switzerland, and Germ. *Per.*
* 44. *Ixioides.* California. *Peren.*
* 45. *Fibrosum.* Near Kerwan. (*Desfont.*)
* 46. *Bonariense.* Buenos Ayres.

Species 14—20, 29—37, 39—42, perennial, and from the Cape of Good Hope.

638. Eriospermum. *Cor.* 6-pet. campan. persistens. *Fil.* basi dilatata. *Caps.* 3-locul. *Sem.* lana involuta.

1. *Latifolium.*
2. *Lancæfolium.*
3. *Parvifolium.*

All perennial, and from the Cape of Good Hope.

‡ 640. Scilla. *Cor.* 6-pet. patens, decidua. *Fil.* filiformia.

1. *Maritima.* Spain, Sicily, and Syria. *Peren.*
2. *Lilio hyacinthus.* France and Spain.
3. *Italica.* *Peren.*
4. *Tetraphylla.* Africa.
5. *Peruviana.* Portugal. *Peren.*
6. *Japonica.* Japan. *Peren.*
7. *Amoena.* Constantinople, Russia, Austria, and Germany. *Peren.*
* 8. *Præcox.* *Peren.*
9. *Campanulata.* Spain and Portugal. *Peren.*
10. *Bifolia.* France and Germany. *Peren.*
11. * *Verna.* Spain, Wales, and the Isle of Man. *Peren.*
12. *Lusitanica.* Portugal. *Peren.*
13. *Orientalis.* Japan. *Peren.*
14. *Hyacinthoides.* Madeira. *Peren.*
15. *Autumnalis.* Spain, France, and Verona. *Per.*
16. *Unifolia.* Portugal.
* 17. *Sibirica.* Siberia. *Peren.*
* 18. *Lingulata.* Fields of Barbary.
* 19. *Villosa.* Near Kerwan.
* 20. *Obtusifolia.* Near Lacalle.
* 21. *Parviflora.* Algiers.
* 22. *Undulata.* Hills of Barbary. } See Desfont. *Flor. Atlant.* i. p. 298.
* 23. *Mauritanica.* Barbary.
* 24. *Tingitana.* Barbary. } Schousb. *Moroc.* i. p. 154.
* 25. *Biflora.* Hills of Peru. (*Fl. Per.*)

641. Cyanella. *Cor.* 6-pet.; petalis 3 inferioribus propendentibus. *Stam.* infimum declinatum, longius.

1. *Capensis.*
2. *Orchidiformis.*
3. *Lutea.*
4. *Alba.*

All perennial, and from the Cape of Good Hope.

682. Philesia. *Cal.* 0. *Cor.* 6-pet. petalis 3 interioribus duplo longioribus. *Stig.* 3-lobum. *Bacca* supera polysperma.

1. *Buxifolia.* Straits of Magellan. *Shrub.*

680. Lindera. *Cal.* 0. *Cor.* 6-pet. infera. *Stig.* 2. *Caps.* 2-locul.

1. *Umbellata.* Japan. *Shrub.*

647. Dracæna. *Cor.* 6-part. erecta. *Fil.* medio subcrassiora. *Bacca* 3-locul. 1-sperma.

1. *Draco.* East Indies. *Shrub.*
2. *Indivisa.* New Zealand. *Shrub.*
3. *Umbraculifera.* Mauritius. *Shrub.*
4. *Australis.* Queen Charlotte's Sound, New Zealand. *Shrub.*

5. *Cernua.* Mauritius. *Shrub.*
6. *Ferrea.* China. *Shrub.*
7. *Terminalis.* India. *Shrub.*
8. *Marginata*, or *dentata*. Bourbon. *Shrub.*
9. *Striata.* Cape of Good Hope. *Shrub.*
10. *Undulata.* Cape of Good Hope.
11. *Erecta.* Cape of Good Hope.
12. *Ensifolia.* India. *Peren.*
13. *Borealis.* Hudson's Bay and Canada. *Peren.*
14. *Graminifolia.* Asia.
* 15. *Fragrans.* (*Aletris fragrans* of Willdenow.) (Ker, *Bot. Mag.* 1081.)
* 16. *Marginata.* Madagascar. } See Lamarck,
* 17. *Reflexa.* Mauritius. } *Encyc.* vol. ii.
* 18. *Mauritiana.* Bourbon. } p. 324.

‡ 646. ASPARAGUS. *Cor.* 6-part. erecta: petalis tribus interioribus apice reflexis. *Bacca* 3-locul. 2-sperma.

1. *Officinalis.* England and other parts of Europe. *Peren.*
2. *Declinatus.* 4. *Flexuosus.*
3. *Decumbens.* 5. *Scandens.*
6. *Falcatus.* Ceylon. *Shrub.*
7. *Racemosus.* East Indies. *Shrub.*
8. *Retrofractus.* Africa.
9. *Æthiopicus.* *Peren.*
10. *Asiaticus.* Asia. *Shrub.*
11. *Albus.* Spain and Portugal. *Shrub.*
12. *Acutifolius.* Portug. Spain, and the East. *Sh.*
13. *Subulatus.* *Shrub.* 15. *Horridus.* *Shrub.*
14. *Dependens.* *Shrub.*
16. *Aphyllus.* Sicily, Spain, and Portugal. *Shrub.*
17. *Lanceus.* *Shrub.* 18. *Capensis.* *Shrub.*
19. *Sarmentosus.* Ceylon. *Shrub.*
20. *Verticillaris.* In the East about Derbent, and elsewhere.
* 21. *Tenuifolius.* S. of France. } Lamarck, *Encyc.*
* 22. *Crispus.* Mauritius. } i. p. 295.
* 23. *Fasciculatus.* New Holland. (*Brown.*)

Species 2—5, 9, 13—15, 17, 18, from the Cape of Good Hope. See Brown, *Prodromus*, p. 281.

645. POLLIA. *Cor.* 6-pet. infera, 3 exteriora majora, 3 interiora reflexa. *Bacca* polysperma.

1. *Japonica.* Japan and Java. *Peren.*

631. GLORIOSA. *Cor.* 6-pet. undulata, reflexa. *Stylus* obliquus.

1. *Superba.* Malabar. *Peren.*
2. *Simplex.* Senegal.

632. ERYTHRONIUM. *Cor.* 6-pet. campan.: *Nectario* tuberculis 2, petalorum alternorum basi adnatis.

1. *Dens canis.* Liguria. *Peren.*
* 2. *Americana.* North America. *Peren.*

630. UVULARIA. *Cor.* 6 pet. erecta: nectarii fovea baseos petali. *Fil.* brevissima.

1. *Amplexifolia.* Bohemia, Silesia, Saxony, Switzerland, and mountains of Dauphiny. *Peren.*
2. *Hirta.* Japan, near Jedo. *Peren.*
3. *Lanceolata.* North America. *Peren.*
4. *Perfoliata.* Virginia and Canada. *Peren.*
5. *Sessilifolia.* Canada. *Peren.*
6. *Cirrhosa.* Japan. *Peren.*
* 7. *Grandiflora.* North America. *Peren.* (*Bot. Mag.* 1112.)
* 8. *Chinensis.* China. *Peren.* (*Bot. Mag.* 916.)
* 9. *Puberula.* Mountains of Carolina.
* 10. *Rosea.* Mountains of Carolina and Canada.
* 11. *Lanuginosa.* Mountains of Carolina.

Species 10—12, see Michaux, *Fl. Amer.* i. p. 199. Persoon ranks species 1, 11, 12, under the subgenus STREPTOPUS. According to Mr Brown, species 9. seems to constitute a new intermediate genus between UVULARIA and SCHELHAMMERA. (*Prodr.* p. 279.)

‡ 628. FRITILLARIA. *Cor.* 6-pet. campan. supra ungues cavitate nectarifera. *Stam.* longitudine corollæ.

1. *Imperialis.* Persia? This plant came from Constantinople to Europe. *Peren.*
2. *Persica.* Persia? *Peren.*
3. *Verticillata.* Siberia. *Peren.*
4. *Pyrenaica.* Pyrenees, Russia. *Peren.*
5. *Meleagris.* England, and other parts of Europe, Siberia. *Peren.*
6. *Latifolia.* *Peren.*
* 7. *Plantaginea.* In the East. (Lamarck, *Encyc.*)

Persoon ranks sp. 1. under the subgenus PTILIUM.

627. LILIUM. *Cor.* 6-pet. campan.: linea longitudinali nectarifera. *Caps.* valvulis pilo cancellato connexis.

1. *Cordifolium.* Japan. *Peren.*
2. *Longiflorum.* Japan, near Nagasaki and Miaco. *Peren.*
3. *Candidum.* Palestine, Syria, Spain, and Switzerland. *Peren.*
4. *Japonicum.* Japan.
5. *Lancifolium.* Japan. *Peren.*
6. *Bulbiferum.* Italy, Austria, Siberia, Switzerland, Francfort, and Carniola. *Peren.*
7. *Catesbæi.* Wet parts of Carolina. *Peren.*
8. *Speciosum.* Japan. *Peren.*
9. *Pomponium.* Pyrenees and Siberia. *Peren.*
10. *Chalcedonicum.* Persia and Carniola. *Peren.*
11. *Superbum.* North America. *Peren.*
12. *Martagon.* Hungary, Switzerland, and Siberia. *Peren.*
13. *Canadense.* Canada. *Peren.*
14. *Maculatum.* Japan. *Peren.*
15. *Camschatcense.* Canada and Kamschatka. *Per.*
16. *Philadelphicum.* Canada. *Peren.*
* 17. *Concolor.* China. *Peren.*
* 18. *Tigrinum.* China. *Peren.*
* 19. *Carolinianum.* Lower Carolina. (*Michaux.*)

‡ 633. TULIPA. *Cor.* 6-pet. campan. *Stylus* 0.

1. *Sylvestris.* England, and other parts of Europe, Siberia. *Peren.*
2. *Suaveolens.* South of Europe. *Peren.*
3. *Gesneriana.* Cappadocia and Russia. *Peren.*
4. *Biflora.* Desert parts about the Wolga. *Per.*
5. *Breyniana.* Cape of Good Hope. *Peren.*
* 6. *Celsiana.* In the East? } Persoon, *Synopsis*,
* 7. *Clusiana.* In Persia? } i. p. 361.

658. YUCCA. *Cor.* campanulato-patens. *Stylus* 0. *Caps.* 3 locul.

1. *Gloriosa.* Canada and Peru. *Shrub.*
2. *Aloifolia.* Jamaica and Vera Cruz. *Shrub.*
3. *Draconis.* America. *Shrub.*
4. *Filamentosa.* Virginia. *Shrub.*

634. ALDUCA. *Cor.* 6-pet. interioribus conniventibus, exterioribus patulis. *Stylus* triqueter.

1. *Altissima.* 8. *Caudata.*
2. *Major.* 9. *Setosa.*
3. *Flaccida.* 10. *Aurea.*
4. *Minor.* 11. *Abyssinica.*
5. *Viridiflora.* 12. *Fragrans.*
6. *Coarctata.* 13. *Viscosa.*
7. *Fastigiata.* 14. *Spiralis.*

All perennial, and from the Cape of Good Hope, except species 11. from Abyssinia?

Class VI. Hexandria.

SECT. V. _Flowers Incomplete._

664. ORONTIUM. _Spadix_ cylindricus tectus flosculis. _Cor._ 6 petal. nudæ. _Stylus_ 0. _Follic._ 1-spermi.
1. _Aquaticum._ Springs and marshy parts of Virginia and Canada. _Peren_
2. _Japonicum._ Japan. _Peren._

‡ 663. ACORUS. _Spadix_ cylindricus, tectus flosculis. _Cor._ 6 petal. nudæ. _Stylus._ 0. _Caps._ 3 locul.
1. _Calamus._ Engl. and other pts. of Eur. _Per._
2. _Gramineus._ Cultivated in China. _Peren._

669. CALAMUS. _Cal._ 6-phyllus. _Cor._ 0. _Bacca_ exarida, 1-sperma, retrorsum imbricata.
1. _Rotang._ Woody pts. of India near rivers. _Shr._
2. _Verus._ Banks of rivers East Indies. _Shrub._
3. _Draco._ East Indies. _Shrub._
4. _Niger._ Shores of the East Indies. _Shrub._
5. _Viminalis._ Damp woods of Java and Celebes. _Shrub._
6. _Rudentum_, or _albus._ Sandy shores E. Ind. _Shr._
7. _Equestris._ Amboyna. _Shrub._
8. _Zalacca._ Wet woods of Java. _Shrub._

‡ 670. JUNCUS. _Cal_ 6-phyll. _Cor._ 0. _Caps._ 1-locul.
1. _Acutus._ England, France, Italy, marshy coasts of Carniola. _Peren._
2. _Conglomeratus._ England and other parts of Europe. _Peren._
3. _Effusus._ Engl. Eur. Amer. and N. Holl. _Per._
4. _Glaucus._ Engl. and wet parts of Germ. _Per._
5. _Inflexus._ South of Europe. _Peren._
6. _Arcticus._ Norway and Lapland, _Peren._
7. _Filiformis._ Engl. and other parts of Eur. _Per._
8. _Capillaceus._ Brasil, near Monte Video.
9. _Grandiflorus._ Straits of Magellan, also Terra del Fuego. _Peren._
10. _Magellanicus._ Straits of Magellan.
11. _Rubens._ Brasil, near Monte Video.
12. _Trifidus._ Engl. and other parts of Eur. _Peren._
13. _Squarrosus._ Engl. and other parts of Eur. _Per._
14. _Capitatus._ Gravelly and wet parts of Germany and Spain. _Ann._
15. _Capensis._ Cape of Good Hope.
16. _Punctorius._ Cape of Good Hope.
17. _Nodosus._ North America. _Peren._
18. _Articulatus_, or _aquaticus._ England and other parts of Europe. _Peren._
19. _Sylvaticus._ Engl. and other pts. of Eur. _Per._
20. _Subverticillatus._ Eur. and N. America. _Per._
21. _Tenageja._ Germany and France. _Ann._
22. _Bulbosus._ Engl. and other parts of Eur. _Per._
23. _Tenuis._ North America. _Peren._
24. _Bufonius._ Engl. and other parts of Eur. _Ann._
25. _Cephalotes._ Cape of Good Hope.
26. _Stygius._ Sweden. _Peren._
27. _Jacquini._ Mount Schneeberg in Austria and mountains of Switzerland. _Peren._
28. _Biglumis._ England and Lapland. _Peren._
29. _Triglumis._ England and Lapland. _Peren._
30. _Pilosus._ Engl. and other parts of Eur. _Per._
31. _Maximus._ Mountains of Germany, Bohemia, Carinthia, Switzerl. Fran. and Denmark. _Per._
32. _Spadiceus._ Mts. of Switzerl. and Dauph. _Per._
33. _Luteus._ Mts. of Switz. Savoy, and Fran. _Per._
34. _Parviflorus._ Mountains of Lapland. _Peren._
35. _Serratus._ Cape of Good Hope.
36. _Albidus._ Germany and Switzerland. _Peren._
37. _Niveus._ Alps of Bohemia, Switzerland, Rhætia, and Montpellier. _Peren._
38. _Campestris._ Engl. and other pts. of Eur. _Per._
39. _Sudeticus._ Mountains of Silesia. _Peren._
40. _Spicatus._ England and Lapland. _Peren._

*41. _Maritimus._ Britain and New Holland. _Per._
*42. _Lampocarpus._ Britain and N. Holland. _Peren._
*43. _Obtusiflorus._ Britain and N. Holland. _Peren._
*44. _Acutiflorus._ Britain and N. Holland. _Peren._
*45. _Uliginosus._ England. _Peren._
*46. _Castaneus._ Scotland. _Peren._
*47. _Fosteri._ England. _Peren._
*48. _Rigidus._ Coasts of Barbary. (_Desfont._)
*49 _Setaceus._ Pennsylvania. _Peren._ (_Rostock._)
*50. _Cymosus._ Cape of Good Hope. (_Lamarck._)
*51. _Pygmæus._ France. (_Thuill._)
*52. _Marginatus._ Pennsylvania. (_Rostock._)
*53. _Alpinus._ Mountains of Switzerland and Dauphiny. (_Villars._)
*54. _Acuminatus._ Lower Corolina.
*55. _Aristatus._ Georgia and Carolina. } Michaux, _Fl. Amer._
*56. _Multiflorus._ Marshes of Barbary.
*57. _Foliosus._ Marshes of Algiers.
*58. _Triceps._ Siberia. } Desfont. _Fl. Atl._
*59. _Glabratus._ Mountains of Salzburgh.
*60. _Pediformis._ Dauphiny and Piedmt. (_Villars._)
*61. _Congestus._ France. (_Thuill._)
*62. _Erectus._ France. (_Thuill._)
*63. _Pallidus._
*64. _Vaginatus._
*65. _Pauciflorus._
*66. _Planiflorus._
*67. _Holoschœnus._
*68. _Prismatocarpus._
*69. _Plebeius._
*70. _Gracilis._
*71. _Revolutus._

Willdenow has made Sp. 41 a variety of Sp. 1, and Sp. 45 a variety of Sp. 20. See Smith, _Flora Brit._ i. 375, &c. and _Engl. Botany_, 2143.

Sp. 63—71 from New Holland and Van Diemen's Island. See Brown's _Prodromus_, p. 258.

668. THRINAX. _Cal._ 6-dent. _Cor._ 0. _Stig._ infundibulif. obliquum. _Bacca_ 1-sperma.
1. _Parviflora._ Dry coasts of Jamaica and Hispaniola. _Shrub._

‡ 691. PEPLIS. _Perianth._ campan.: ore 12-fido. _Pet._ 6, calyci inserta. _Caps._ 2-locul.
1. _Portula._ England and other pts. of Eur. _Ann._
2. _Indica._ East Indies.

SECT. VI. _Grasses._

693. BAMBUSA; BAMBOS, _Persoon_; or BAMBUS, _Humboldt._ _Squamæ_ tres spiculas subquinquefloras tegentes. _Cal._ 0. _Cor._ gluma 2-valvis. _Stylus_ 2-fidus. _Sem._ 1.
1. _Arundinacea._ East and West Indies. _Shrub._
2. _Verticillata._ India. _Shrub._
*3. _Guadua._ Warm parts of America. _Shrub._
*4. _Latifolia._ Shady and wet woods of the river Cassiquiare. } Humboldt, _Plant. Equinoct._

692. GAHNIA. _Cal._ gluma 1-valvis 2-5-flora. _Cor._ gluma 2-valvis. _Stylus_ dichotomus. _Sem._ 1.
1. _Procera._ Hills of New Zealand.
2. _Schœnoides._ Island of Otaheite.
*3. _Psittacorum._ Van Diemen's Island.
*4. _Leucocarpa._ New Holland.
*5. _Erythrocarpa._ New South Wales.
*6. _Melanocarpa._ New Holland and Van Diemen's Island. (_Stam._ 3.)

694. EHRHARTA. _Cal._ gluma 2-valvis abbreviata uni-

Class VI. Hexandria.

VII. **Eustrephus.** *Cor.* 6-part.: petalis 3 interioribus fimbriatis. *Caps.* baccata, 3-locul. 3-valvis, polysperma. (R. Brown, *Prodromus*, p. 281.)

1. *Latifolius.* *Shrub.* 2. *Angustifolius.* *Shr.*

Both from New Holland.

VIII. **Dianella.** *Cor.* 6-pet. patens. *Fil.* apice incrassata. *Bacca* 3-locul. polysperma. (*Jussieu.*)

1. *Cærulea.* 5. *Revoluta.*
2. *Congesta.* 6. *Divaricata.*
3. *Longifolia.* 7. *Rara.*
4. *Lævis.*

All perennial, and from New Holland.

See Brown's *Prodromus*, p. 279, 280.

IX. **Ophiopogon.** *Cor.* semisupera, persistens. *Anth.* sessiles. *Stig.* simplex. *Bacca* 1-sperma. (*Ker.*)

1. *Japonicus.* Japan. *Peren.*

This species is the *Convallaria Japonica* of Willdenow. See Ker in *Bot. Mag.* 1063.

X. **Tritoma.** *Cor.* 1-pet. 6-dent. *Stam.* receptaculo inserta, exserta: alterna longiora. *Caps.* 3-locul. polysperma. (*Ker.*)

1. *Uvaria.* Cape of Good Hope. *Peren.*
2. *Media.* Cape of Good Hope. *Peren.*
3. *Pumila.* Cape of Good Hope. *Peren.*

Sp. 1 and 3 are given by Willdenow under the same name in the genus **Veltheimia.** See Ker in *Bot. Mag.* 744.

XI. **Furcrœa.** *Cor.* supera, 6-pet. patula. *Fil.* corolla breviora, inferne obovata; superne subulata. *Styl.* triqueter, basi incrassatus. (*Ventenat.*)

1. *Gigantea.* South America. *Shrub.*
2. *Tuberosa.* America. *Shrub.*

Sp. 1. is the *Agave fœtida*, and Sp. 2. the *A. tuberosa* of Willd. See *Ventenat.* in Usteri's *Annal. der Botan.* xix. p. 54. Persoon ranks this as a subgenus to *Agave.*

XII. **Doryanthes.** *Cor.* supera, 6-part. *Fil.* cor. breviora. *Anth.* erectæ. (*Correa.*)

1. *Excelsa.* New South Wales. *Shrub.*

See Corræa in *Linn. Trans.* vi. p. 213. t. 23 and 24; and Brown's *Prodromus*, p. 298.

XIII. **Guzmannia.** *Cal.* inferus, 3-part.: laciniis convolutis. *Pet.* 3, in tubum convoluta. *Anth.* in cylindrum coalitæ. *Caps.* 3-locul. 3-valv. *Sem.* numerosa, oblonga, nuda. (*Persoon.*)

1. *Tricolor.* Mts. of Peru. *Per.* (*Fl. Per.* iii. 39.)

XIV. **Æchmea.** *Cal.* inferior (aut squama germen amplectens) 1-phyll. cyathiformis, subtrifidus: superior 3 part. coriaceo-scariosus: laciniis margine convolutis. *Pet.* 3. *Squamæ* 2, ad basin singuli petali. *Caps.* 3-locul. 3-valv. *Sem.* obovata, pulpa melli nidulantia. (*Persoon.*)

1. *Paniculata.* Groves of the Andes. (*Fl. Per.*)

XV. **Phalangium.** *Cor.* 6 pet. patens. *Fil.* nuda seu glabra. *Caps.* ovata. *Sem.* angulata. *Rad.* plerumque fibrosæ aut fasciculatæ. *Fol.* plana. *Flor.* in plurimis albi aut purpurascentes. (*Persoon.*)

1. *Virgatum.* Carolina.
2. *Fastigiatum.*
3. *Revolutum.* Cape of G. H.
4. *Capillare.*

See Poiret, *Encyc. Bot.* v. p. 246.

5. *Croceum.* Wet woods of Georgia. (*Mich.*)
6. *Sulphureum.* Hot springs in Hungary. (*Pl. Hungar.* p. 89.)
7. *Carnosum.* Chili.
8. *Coarctatum.* Andes.
9. *Eccremorhizum.* Hills of Peru.
10. *Glaucum.* Andes.

See *Flor. Peruv.* iii. p. 67.

11. *Niveum.* India. (*Encyc. Bot.*)

This genus also contains the first 32 species of **Anthericum**, p. 188.

‡ XVI. **Narthecium.** *Cor.* 6-pet. patens, persistens. *Fil.* filiformia, hirsuta. *Caps.* supera prismatica. *Sem.* utrinque appendiculata. *Cal.* 0.

1. *Ossifragum.* Lancashire in England. (Smith, *Fl. Brit.* i. p. 367.)

XVII. **Conanthera.** *Cor.* supera. *Pet.* 6, reflexa. *Anth.* in conum acutum coalitæ. *Caps.* oblonga, 3-locul. 3-valv. *Sem.* pauca, subrotunda. (*Persoon.*)

1. *Bifolia.* Hills of Chili.
2. *Echeandia.* (*Anthericum reflexum* of Willd.)

Persoon thinks that this genus ought rather to be transferred to **Syngenesia** *Monogamia.*

XVIII. **Cordyline.** *Cor.* externe pubescens. *Fil.* simplicia, basi corol. inserta. *Stig.* subincrassatum. *Bacca* (turbinata) 1-locul. (*Commers.*)

1. *Hemichrysa.* Bourbon. *Shr.* (*Petit-Thouars.*)
2. *Cannæfolia.* New Holl. (Brown, *Prodr.* 286.)

XIX. **Lapageria.** *Cor.* 6-pet. basi trigona. *Pet.* 3-interiora latiora, subunguiculata. *Anth.* erectæ. *Stig.* clavatum. *Bacca* supera, 1-locul. polysperma. *Sem.* receptaculo triplici, per parietes, decurrenti affixa. (*Fl. Per.* iii. p. 65.)

1. *Rosea.* Woods of Chili. *Shrub.*

XX. **Luzuriaga.** *Cor.* infera 6-pet. *Pet.* 3, exteriora angustiora. *Fil.* receptaculo inserta. *Anth.* erectæ, sagittatæ. *Stig.* 3-angulare. *Bacca* 3-locul.: dissepimentum membranaceum. *Sem.* 2: 1-passim abortiente. (*Fl. Per.* iii. p. 66.)

1. *Radicans.* Woods of Chili. (*Flor. Per.*)
2. *Cymosa.* New Holland.
3. *Montana.* N. South Wales.

Brown's *Prodr.* p. 282.

XXI. **Callixene.** *Cor.* 6-pet. petalis alternis basi biglandulosis. *Fil.* basi latiora. *Anth.* versatiles. *Stig.* 3-gonum. *Bacca* supera, 3-locul. polysperma. (*Persoon.*)

1. *Marginata.* (*Enargea marginata* of Willd.)

XXII. **Herreria.** *Cor.* infera, 6 part. *Stig.* 3-gonum. *Caps.* triquetro alata, 3-locul. 3-valv. valvulæ septiferæ. *Sem.* margine membranaceo cincta. (*Fl. Per.* iii. p. 69.)

1. *Stellata.* Woods of Chili. *Shrub.*

XXIII. **Ripogonum.** *Cor.* 6-part. minima. *Anth.* longæ, 4-gonæ, subsessiles. *Bacca* globosa, 2-sperma. *Sem.* hemisphærica. (*Forster.*)

1. *Scandens.* Australasia.
2. *Album.* N. S. Wales. (Brown, *Prodr.* p. 293.)

XXIV. **Floscopa.** *Cal.* 3-fid. inferus, pilosus. (*Cor.* petal. 3, exteriora ?) *Pet.* 3, ovata. *Caps.* 2-locul. 1-sperma. (*Loureiro.*)

1. *Scandens.* Mountains of Cochinchina. *Shrub.*

XXV. **Oncus**, or **Oncorhiza.** *Cal.* 2-phyll. inferus. *Cor.* 6-fida, campan. *Bacca* 3-locul. (*Loureiro.*)

1. *Esculentus.* Woods of Cochinchina.

XXVI. **Caulophyllum.** *Cal.* 6-phyll. *Cor.* 6-pet. cal. opposita. *Anth.* loculis margine dehiscens. *Drupa.* 1-sperma. (*Michaux.*)

1. *Thallictroides.* (*Leontice Thallic.* of Willd.)

XXVII. **Diphylleia.** *Cal.* 3-phyll. deciduus. *Cor.* 6-pet. cal. opposita. *Anth.* membrana a basi ad apicem solubili dehiscentes. *Bacca* 1-loc. *Sem.* 2-3, subrotunda. (*Michaux*, i. p. 205.)

1. *Cymosa.* Mountains of North Carolina.

XXVIII. **Coutarea.** *Cal.* 6-phyll. *Cor.* magna, infundibulif. 6-fida, tubo incurvo ventricoso. *Fil.* tubi basi inserta. *Stig.* sulcatum. *Caps.* infera 2-loc. 2-valv. polysperma. *Sem.* imbricata, mar-

gine membranaceo. (*Flor.* basi bibracteati interdum 7-andri.) (*Aublet.*)

1. *Speciosa* (*Portlandia Hexandra* of Willd.)

XXIX. Stevensia. *Cal.* bifidus, deciduus. *Cor.* tubulosa: limbo plano 6-7-fido. *Anth.* (6-7) in cor. fauce sessiles. *Caps.* 2-loc. polysperma, apice quadrifariam dehiscens. (Poiteau, *Ann. Mus.* c. 21.)

1. *Buxifolia.* Dominica. *Shrub.*

XXX. Floerkia. *Cal.* 3-phyll. *Cor.* 3-pet. *Styl.* 2-fid. *Utric.* dicoccus. (Willd. *Act. Soc. Nat. Ber.* iii. 1801.)

1. *Lacustris.* Lakes of Pennsylvania.

XXXI. Dasypogon. *Perianth.* duplex; exterius tubulosum, trifidum; interius triphyllum, foliolis semipetaloideis cochleariformibus. *Stam.* 6, imo perianthio inserta. *Fil.* juxta apicem incrassata. *Anth.* versatiles. *Ovar.* 1-loc. 3-spermum: ovulis erectis. *Styl.* subulatus. *Stig.* 1. *Utric.* 1-spermus, tubo indurato perianthii exterioris inclusus. (R. Brown, *Prodromus*, p. 263.)

1. *Bromeliifolius.* New Holland. *Shrub.*

XXXII. Calectasia. *Perianth.* inferum, tubulosum, hypocraterif. limbo petaloideo, 6-part. *Stam.* 6, fauci inserta. *Anth.* conniventes, lineares, basi insertæ. *Ovar.* 1-loc. 3-sperm.: ovulis erectis. *Styl.* filiformis. *Stig.* simplex. *Utric.* 1-spermus, tubo indurato perianthii inclusus. (R. Brown, *Id.*)

1. *Cyanea.* New Holland. *Shrub.*

XXXIII. Livistona. *Flor.* hermaph. *Perianth.* duplex, utrumque 3-part. *Stam.* 6, filamentis distinctis infra dilatis. *Ovaria* tria, intus cohærentia: *Styli* connati. *Stig.* indivisum. *Bacca* (1-maturescens,) 1-sperma. *Albumen* cavitate ventrali. *Embryo* dorsalis. (R. Brown, *Id.* p. 267.)

1. *Inermis.* New Holland.
2. *Humilis.* New Holland.

XXXIV. Anejlema. *Perianth.* 6-part. inæquale: foliola 3 *exteriora* calycina, persistentia: *interiora* petaloideæ decidua. *Stam.* 6. *Anth.* 3 (v. 2-4) dissimiles vix pollinjferæ. *Involucr.* 0. (R. Brown, *Id.* p. 270).

1. *Biflora.*
2. *Siliculosa.*
3. *Acuminata.*
4. *Laxa.*
5. *Macrophylla.*
6. *Crispata.*
7. *Graminea.*
8. *Affinis.*
9. *Anthericoides.*
10. *Gigantea.*

All from New Holland and Van Diemen's Island.

This genus contains also Sp. 9, 10, and 13 of *Commelina*, p. 96.

XXXV. Cartonema. *Perianth.* 6-part. inæquale, persistens: foliola 3 *exteriora* calycina; *interiora* petaloidea, minora. *Stam.* 6, æqualia, persistentia. *Fil.* imberbia (nunc scabriuscula). *Anth.* basi insertæ, oblongæ. *Styl.* persistens. *Stig.* barbatum. *Caps.* perianthio brevior, 3-loc. 3-valvis medio septiferis. *Sem.* subbina. *Embryo* dorsalis (*Id.* p. 271.)

1. *Spicatum.* New Holland. *Peren.*

XXXVI. Burchardia. *Perianth.* 6-phyll. petaloideum, stellato-patens æquale: unguibus foveola nectarifera: deciduum. *Stam.* 6 basi foliolorum inserta. *Anth.* peltatæ, posticæ. *Ovar.* 3-gon.: loculis duplice serie polyspermis. *Styl.* 3-part. *Stig.* acuta. *Caps.* tripartib. segmentis navicularibus, intus dehiscentibus, polyspermis. (*Id.* p. 272.)

1. *Umbellata.* New South Wales.

XXXVII. Schelhammera. *Perianth.* 6-phyll. petaloideum, campan. æquale, deciduum; foliola unguiculata, æstivatione involuta. *Stam.* segregantia. *Stam.* 6, basi foliolorum inserta. *Anth.* posticæ. *Ovar.* 3-loc. loculis polyspermis. *Styl.* 1. *Stig.* 3, recurva. *Caps.* 3-loc. 3-valv. medio septiferis. *Sem.* nonulla, ventricosa. (*Id.* p. 273).

1. *Undulata.* New South Wales. *Peren.*
2. *Multiflora.* New Holland. *Peren.*

This genus is nearest in affinity to *Uvularia.*

XXXVIII. Chlorophytum. *Perianth.* 6-part. patens, æquale, persistens. *Stam.* 6. *Fil.* filiformia, glabra. *Ovar.* loculis polyspermis. *Styl.* filiformis. *Stig.* 1. *Caps.* alte triloba, lobis compressis, venosis, 3-locul. 3-valv. *Sem.* pauca, compressa umbilico nudo. (Ker, and R. Brown, *Prodr.* p. 276.)

1. *Laxum.* New Holland.

This genus contains also the *Anthericum elatum* of the *Hort. Kew.* and an undescribed species from the Cape.

XXXIX. Cæsia. *Perianth.* 6-part., patens, æquale, deciduum. *Stam.* 6. *Fil.* imberbia, utrinque angustata. *Anth.* basi emarginatæ insertæ. *Ovar.* 3-loc. loculis dispermis. *Styl.* filiformis. *Stig.* 1. *Caps.* vix valvata: apice toroso-lobata v. clavata. *Sem.* ventricosà, umbilico strophiolato. (R. Brown, *Prodr.* 277.)

1. *Vittata.*
2. *Parviflora.*
3. *Occidentalis.*
4. *Corymbosa.*
5. *Lateriflora.*

All from New Holland and Van Diemen's Island.

XL. Tricoryne. *Perianth.* 6-part. patens, æquale, deciduum. *Stam.* 6. *Fil.* penicillatim barbata. *Anth.* basi emarginatæ insertæ. *Ovar.* 3-part. : lobis dispermis, basi stylo filiformi connexis. *Stig.* simplex. *Pericarpia* 3, clavata, evalvia, 1-sperma. (R. Brown, *Prodr.* p. 278.)

1. *Simplex.*
2. *Elatior.*
3. *Scabra.*
4. *Tenella.*
5. *Anceps.*

All from New Holland and Van Diemen's Island.

XLI. Stypandra. *Perianth.* 6-part. equale, patens, deciduum. *Stam.* 6. *Fil.* infra attenuata, curvata, glabra, supra stuposo-barbata. *Anth.* basi emarginatæ insertæ. *Ovar.* loculis polyspermis. *Styl.* filiformis. *Stig.* simplex. *Caps.* 3-loc. 3-val. *Sem.* pauca, ovalia, lævia umbilico nudo. *Embryo* rectus. (R. Brown, *Prodr.* p. 278.)

1. *Glauca.*
2. *Imbricata.*
3. *Cæspitosa.*
4. *Umbellata.*
5. *Scabra.*

All from New Holland and Van Diemen's Island. Mr Brown thinks that this genus ought perhaps to be divided.

XLII. Thysanotus. *Perianth.* 6-part., patens, persistens; foliolis *interioribus* latioribus, limbo utrinque colorato, marginibus fimbriatis ciliis articulatis. *Stam.* 6, (raro 3,) imo perianthio inserta, v. hypogyna, declinata. *Fil.* glabra, brevia. *Anth.* linearis emarginaturæ baseos insertæ, 3 interiores sæpius elongatæ reclinatæ. *Ovar.* loculis dispermis. *Styl.* filiformis, declinatus. *Stig.* parvum. *Caps.* 3-loc. 3-valv.: valvis medio septiferis. *Sem.* bina, altero erecto altero pendulo, strophiolata. (R. Brown, *Prodr.* p. 282.)

1. *Tuberosus.*
2. *Bankii.*
3. *Bauerii.*
4. *Elatior.*
5. *Paniculatus.*
6. *Isantherus.*
7. *Gracilis.*
8. *Elongatus.*
9. *Junceus.*
10. *Sparteus.*
11. *Deformis.*
12. *Volubilis.*

Class VI. Hexandria.

13. *Divaricatus.*
14. *Dichotomus.*
15. *Flexuosus.*
16. *Menziesii.*
17. *Patersoni.*
18. *Triandrus.*
19. *Multiflorus.*
20. *Pauciflorus.*
21. *Hispidulus.*

All perennial, and from New Holland and Van Diemen's Island. Species 18—21 have only 3 stamina.

XLIII. Laxmannia. *Perianth.* 6-part. coloratum, basi connivens, persistens. *Stam.* 6. *Fil.* subulata, glabra, laciniis inserta. *Anth.* peltatæ, subrotundæ. *Ovar.* loculis oligospermis. *Styl.* simplex. *Stig.* obtusum. *Caps.* calyce persistenti inclusa, 3-locul. 3-valv., valvis medio septiferis. *Sem.* subbina, peltata, umbilico nudo. *Embryo* dorsalis, umbilico parallelus. (R. Brown, *Prodr.* p. 286.)
1. *Gracilis.* New South Wales. *Peren.*
2. *Minor.* New Holland. *Peren.*

XLIV. Borya. *Perianth.* tubulosum, infundibulif. limbo 6-part. æquali; marcescens bibracteatum. *Stam.* 6, fauci coarctatæ inserta. *Styl.* filiformis. *Stig.* obtusum. *Caps.* bracteis persistentibus inclusa, 3-loc. 3-valv., valvis medio septiferis. *Sem.* (abortione) pauca. (R. Brown, *Prodr.* p. 286.)
1. *Nitida.* New Holland. *Peren.*
2. *Sphærocephala.* New Holland. *Peren.*

XLV. Campynema. *Perianth.* superum 6-part. persistens. *Stam.* filamentis recurvis. *Styli* 3, recurvi. *Caps.* 3-loc., tripartib. *Sem.* numerosa, depressa, testâ spongiosâ. (*Labill.* and R. Brown, *Prodr.* p. 290.)
1. *Linearis.* Van Diemen's Island.

XLVI. Drymophila. *Perianth.* 6-phyll., petaloideum, patens, æquale, deciduum. *Stam.* 6, hypogyna. *Ovar.* 3-loc., loculis polyspermis. *Styl.* 3-part. *Stig.* revoluta. *Bacca* subglobosa, 3-loc. polysperma. (R. Brown, *Prodr.* p. 292.)
1. *Cyanocarpa.* Van Diemen's Island. *Peren.*

XLVII. Blandfordia. *Perianth.* tubulosum, ore 6-lobo, marcescens. *Stam.* tubo imposita. *Anth.* basi extinctoriiformi affixæ. *Ovar.* pedicellatum. *Stylus* subulatus. *Stig.* simplex. *Caps.* prismatica tripartib. partialibus angulo interno dehiscentibus. *Sem.* biseriata, marginibus suturæ inserta, testâ laxâ pubescenti. (Smith, and R. Brown, *Prodr.* p. 295.)
1. *Nobilis.* New South Wales. *Peren.*
2. *Grandiflora.* New South Wales. *Peren.*

XLVIII. Calostemma. *Perianth.* superum, petaloideum, infundibulif., limbo 6-part. *Corona* faucis tubulosa, ore 12-dentato, dentibus alternis subulatis, antheriferis. *Anth.* versatiles. *Ovar.* uniloc. 2-3-sperm. *Styl.* filiformis. *Stig.* obtusum. *Bacca* sphærica, 1-2-sperma. (R. Brown, *Prodr.* p. 297.)
1. *Album.* New Holland.
2. *Purpureum.* New Holland.

XLIX. Conostylis. *Perianth.* superum, coloratum, campan., profundè 6-fid., regulare, lanatum pilis ramulosis, persistens. *Stam.* 6. *Anth.* erectæ. *Ovar.* 3-loc., polyspermum. *Styl.* conico-dilatatus, cavus. *Stig.* breve. *Caps.* apice dehiscens, stylo cavo tripartib. coronata. *Placenta* centralis, triquetra. *Sem.* numerosa. (R. Brown, *Prodr.* p. 300.)
1. *Aculeata.*
2. *Serrulata.*
3. *Setigera.*
4. *Breviscapa.*

All perennial, and from New Holland.

L. Phlebocarya. *Perianth.* superum, 6-partitum, imberbe, persistens. *Stam.* basi laciniarum inserta. *Anth.* 4-gonæ, subsessiles. *Ovar.* uniloculare! trispermum. *Stylus* filiformis. *Stig.* simplex. *Nux* corticata, coronata, monosperma. (*Prodr.* p. 301.)
1. *Ciliata.* New Holland. *Peren.*

LI. Cassupa. *Cor.* tubulata, pallide rubra, bipollicaris, limbo 6 part. fauce villosissima, inferne obtuse 6-gona, superne verrucosa; laciniis ovali-lanceolatis patentibus. *Fil.* 6, fauci imposita, brevissima; antheræ filamentis duplo longiores, oblongæ, incumbentes, villis faucis immersæ 2-loc. *Ovar.* sphæricum. *Styl.* 1, fere longitudine cor. inclusus. *Stig.* 2-fid. *Bac.* 8 linearis, longa, sphærica, limbo calycis coronata, 2-loc., polysperma. *Recept.* in angulo interiori singuli loculamenti convexum. *Sem.* minuta, angulata, numerosissima. (Humboldt and Bonpland, *Pl. Equin.* p. 43.)
1. *Verrucosa.* Shady Woods of the Rio Negro near Cassupo. A *tree* 30 feet high.

TRIGYNIA.

‡ LII. Tofieldia. *Cal.* 3-fid. *Cor.* 6-pet. *Caps.* 3 basi junctæ, polyspermæ. (*Smith.*)
1. *Palustris.* Britain. *Peren.*
2. *Pubens.* North America. *Peren.*
3. *Pusilla.* At the Lake Mistassins. }
4. *Glutinosa.* At the Lake Mistassins. } *Michaux.*
5. *Falcata.* Andes. (*Fl. Per.*)

See Smith, *Fl. Brit.* p. 397. Species 1. is the *Helonias borealis* of Willd.

LIII. Ornithoglossum. *Cal.* 0. *Pet.* 6, sessilea, persistentia. *Stam.* receptaculo inserta, decidua. *Styli* decidui. *Caps.* 3-locul. polysperma. (*Salisbury.*)
1. *Viride.* Cape of Good Hope. *Peren.*

See Salisbury's *Paradis. Lond.* p. 54. This species is the *Melanthium viride* of Willdenow.

LIV. Anguillaria. *Perianth.* 6-phyllum, petaliodeum, unguiculatum, stellato-patens, æquale, deciduum. *Stam.* 6 basi foliolorum inserta. *Anth.* posticæ. *Ovar.* 3-loc. polyspermum. *Styl.* 3. *Stig.* acuta. *Caps.* nuda, 3-loc. 3-valv. medio septiferis. *Sem.* numerosa, subglobosa. (R. Brown, *Prodr.* p. 273.)
1. *Dioica.*
2. *Biglandulosa.*
3. *Uniflora.*
4. *Indica.* (*Melanthum Indicum* of Linn.)

LV. Zigadenus. *Cor.* 6-phyll. patens: laciniis supra basin angustatum biglandulosis. *Stam.* ad contactum ovarii inserta. *Styl.* 3, contigui. *Caps.* membranacea, 3-loc. *Sem.* plurima, aptera. (*Michaux.*)
1. *Glaberrimus.* Lower Carolina.

LVI. Merendera. Spatha. *Cor.* campan. 6-part. *Anth.* rectæ, sagittatæ. *Caps.* 3, basi connexæ, latere interiore dehiscentes. (Ramond, *Bull. Soc. Philom.*)
1. *Bulbocodium.* Pyrenees and Barbary. (*Desfont.*)

LVII. Xerophyllum. *Cor.* rotata. *Fil.* basi contigua. *Stig.* 3, revoluta, basi subconnata. *Caps.* subglobosa, apice triplici rima dehiscens, 3-loc. 2-sperma. (*Michaux.*)
1. *Setifolium.* Pennsylvania.

LVIII. Nolinea. *Cor.* 6-part. patens. *Styl.* bre-

vissimus. *Caps.* 3-gona, membranacea, 3-loc. dissepimentis bipartibilibus dehiscens. *Sem.* solitaria, hinc convexo-incurva. (*Michaux.*)

1. *Georgiana.* Georgia.

LIX. Sabal. *Flor.* hermaph. *Spathæ* partiales. *Fil.* libera, basi incrassata. *Bacca* (Drupa?) 1-3-sperma (per abortum). *Sem.* osseum. *Embryo* lateralis. (*Guernsent.*)

1. *Minor* seu *Adansoni.* North America. (*Michaux.*)

LX. Hydrogeton. *Scapus* radicalis. *Cor.* 3-pet. *Fil.* basi dilatata. *Pistilla* 3, simplicia. *Caps.* 3, membranaceæ, 2-spermæ. *Sem.* parieti caps. adnata.

1. *Fenestralis.* Madagascar. (*Persoon.*)

Hexagynia.

LXI. Ottelia. *Spatha* 1-phylla, 5-alata. *Cal.* superus, 3-part. *Cor.* 3-pet. *Bacca* 10-loc. polysperma.

1. *Alismoides.* (*Damasonium Indicum* of Willd.) See Persoon's *Synopsis*, p. 400.

Polygynia.

LXII. Actinocarpus. *Perianth.* 6-partit. foliola 3 exteriora tardius decidua: 3 interiora petaloidea. *Stam.* 6. *Ovaria* 6-8, basi connata, disperma. *Caps.* basi connatæ, suprà stellatæ. (R. Brown, *Prodr.* p. 342.)

1. *Minor.* New South Wales.

LXIII. Anopterus. *Cal.* 6-fidus, persistens. *Cor.* 6-fida, tubo brevissimo. *Stig.* bifidum. *Caps.* unilocularis, bivalvis, polysperma. *Sem.* valvarum marginibus affixa, pendula, apice alata. *Embryo* minutus, subglobosus, albumine carnoso inclusus: Radiculâ superâ. (*Labill.* and Brown, *Prodr.* 457.)

1. *Glandulosa.* Van Diemen's Island. *Shrub.*

REMARKS ON THE CLASS HEXANDRIA.

Persoon ranks the genus Aponogeton under this class; but we have, after Willdenow, given it under Dodecandria. The same author has transferred Cleome from Tetradynamia to Hexandria.

The following plants might be expected to occur in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Some species of Guettarda, Genista, Tectona *grandis.* Amyris *Zeylanica.* Limonia *trifoliata.* Lythrum *lineare, parsonsia, hyssopifolia.* Cassia *glandulosa.* Trientalis *Europea.* Some species of Polygonum and Laurus. Dodonæa *viscosa.* Bocconia *frutescens.* Mimusops *hexandra.* Chlora *imperfoliata.* Gaura *tripetala.* Portlandia *hexandra.* Dimocarpus *litschi.* Fumaria *cucullaria.*

Digynia.

Leersia *hexandra.* Xylophylla *latifolia.* Swertia *difformis.* Velezia *rigida.*

CLASS VII. HEPTANDRIA.

Order I. Monogynia.

Sect. I. *Flowers Complete.*

‡ 712. Trientalis. *Cal.* 7-phyll. *Cor.* 7-part. æqualis, plana. *Bacca* exsucca.

1. *Europæa.* Scotland, England, and other parts of Europe. *Peren.*

713. Disandra. *Cal.* sub-7-part. *Cor.* rotata, 7-part. *Caps.* 2-locul. polysperma.

1. *Prostrata.* Island of Madeira. *Peren.*

717. Æsculus. *Cal.* 1-phyll. 4 seu 5-dent. ventricosus. *Cor.* 4 seu 5-pet. inæqualiter colorata, calyci inserta. *Caps.* 3 locul.

1. *Hippocastanum.* North of Asia; brought into Europe in 1550. *Shrub.*
2. *Pavia.* Carolina, Florida, and Brasil. *Shr.*
3. *Flava*, or *Lutea.* North Carolina. *Shrub.*
* 4. *Parviflora*, or *Macrostachys.* Carolina and Florida. *Shrub.* (*Michaux.*)

Persoon ranks Species 2, 3, 4, under the subgenus Pavia. *Cor.* 4-pet. connivente. *Caps.* lævibus. *Synopsis*, p. 403.

718. Petrocarya. *Cal.* 5-fid. *Cor.* 5-pet. *Stam.* 14, quorum 7 sterilia. *Drupa* carnosa fibrosa. *Nux* 2-locul. loculis 1-sperm.

1. *Montana.* Woods of Guinea. *Shrub.*
2. *Campestris.* Guiana. *Shrub.*

716. Pancovia. *Cal.* campan. 4-part. *Pet.* 4, unguiculata plicato-crispa dentata cucullata. *Stam.* adscendentia calyce longiora.

1. *Bijuga.* Guinea. *Shrubby.*

719. Jonesia. *Cal.* 2-phyll. *Cor.* infundibulif. tubo clauso carnoso, limbo 4-fido. *Nect.* annulus fauci tubi corollæ insertus staminiferus. *Germ.* pedicellatum. *Legumen* acinaciforme 4-8 spermum.

1. *Pinnata.* East Indies. *Shrub.*

Sect. II. *Flowers Incomplete.*

714. Pisonia, or Calpidia. *Cal.* campan. 5-fid. *Cor.* 0. *Bacca* 1-loc. 1-sperma.

1. *Aculeata.* South America. *Shrub.*
2. *Subcordata.* Antigua, St Christophers, and St Bartholemew. *Shrub.*
3. *Nigricans.* Mts. of Jamaica and Spain. *Shr.*
4. *Coccinea.* Hispaniola.
5. *Mitis.* East Indies. *Shrub.*
* 6. *Grandis.* New Holland. *Shrub.*

*5. *Tripetala.* Mexico. (*Cavanilles.*)
730. ŒNOTHERA. *Cal.* 4-fid. tubulosus. *Pet.* 4. *Caps.* 4-loc. 4-valv. cylindrica, infera. *Sem.* nuda.
1. *Biennis.* Virginia. *Bien.*
2. *Grandiflora*, or *Suaveolens.* North America. *Bien.*
3. *Parviflora.* North America.
4. *Muricata.* Canada. *Ann. Bien.*
5. *Longiflora.* Buenos Ayres. *Ann. Bien.*
6. *Mollissima.* Buenos Ayres. *Ann.*
7. *Nocturna.* Cape of Good Hope. *Ann.*
8. *Villosa.* Cape of Good Hope.
9. *Odorata.* River Champion in Patagonia. *Per.*
10. *Sinuata.* Virginia. *Ann.*
11. *Tetraptera.* Sotoluca New Spain. *Peren.*
12. *Fruticosa.* Virginia. *Peren.*
13. *Pumila.* North America. *Peren.*
14. *Rosea.* Peru. *Peren.*
15. *Purpurea.* North America. *Ann.*
*16. *Prostrata.* Among crops in Peru.
*17. *Tenella.* Plains of Chili. } See *Flor.*
*18. *Tenuifolia.* Peru. } *Peruv.* p.
*19. *Dentata.* Peru. } 79.
*20. *Acaulis.* Chili. *Bien.* (*Cavanilles.*)
*21. *Virgata.* Peru. (*Flor. Peruv.*)
*22. *Glauca.* Woods of North Amer.
*23. *Hybrida.* Upper Carolina.
*24. *Pusilla.* About the Lake Mistassins.
*25. *Chrysantha.* From Quebec to Hudson's Bay.
*26. *Linearis.* Upper Carolina.
See Michaux, *Flor. Amer.* i. p. 224.
*27. *Subulata.* Fields of Chili. (*Fl. Per.*)
*28 *Undulata.* South America, Port Desire. (*Hort. Kew.* ii. 342.)
735. VITMANNIA. *Cal.* 4-fid. *Cor.* 4-pet. *Nect.* squama ad basin filamentorum. *Nux* semilunata compressa monosperma.
1. *Elliptica.* East Indies. *Shrub.*
729. RHEXIA. *Cal.* 5-fid. *Pet.* 4, calyci inserta. *Anth.* declinatæ. *Caps.* 4-loc. intra ventrem calycis.
1. *Virginica.* Virginia. *Peren.*
2. *Mariana.* Maryland. *Peren.*
3. *Trichotoma.* Surinam. *Shrub.*
4. *Bivalvis.* Meadows of Guiana. *Ann.*
5. *Trivalvis.* Meadows of Guiana. *Ann.*
6. *Jussiæoides.* Surinam. *Shrub.*
7. *Hypericoides.* Wet meadows of Cayenne. *Ann.*
8. *Glutinosa.* New Granada. *Shrub.*
9. *Acisanthera.* Jamaica.
10. *Glomerata.* Surinam.
11. *Longifolia.* South America.
12. *Aspera.* Dry parts of Guiana. *Shrub.*
13. *Inconstans.* St Christophers and Mt. Serrat. *Shrub.*
14. *Latifolia.* Meadows of Guiana.
15. *Villosa.* Meadows of Guiana.
16. *Aquatica.* Cayenne, Surinam, Jamaica, and Dominica.
17. *Uniflora.* Cayenne. *Shrub.*
*18. *Petiolata.* Carolina. (*Walter.*)
*19. *Ciliata.* Lower Carolina. } *Michaux.*
*20. *Lutea.* Florida and Georgia. }
*21. *Alifanus.* Carolina. (*Walter.*)
*22. *Glabellus.* Woods of Carolina and Georgia. (*Michaux.*)
*23. *Quinquenervis.* Mountains of Peru. *Shr.*
*24. *Rosmarinifolia.* Mountains of Peru.
*25. *Lutescens.* Mountains of Peru. *Shrub.*
*26. *Dicrananthera.* Woods of Peru.
*27. *Echinata.* Hills of Peru. *Shrub.*
*28. *Recurva.* Cayenne. (*Poiret.*)
*29. *Flexuosa.* Peru. } *Fl. Peruv.*
*30. *Ochypetala.* Mts. of Peru. } iii. p. 85.
For Sp. 23—27, see *Fl. Per.* iii. p. 83.
728. OSBECKIA. *Cal.* 4-fid. lobis squama ciliari interstinctis. *Cor.* 4-pet. *Anth.* rostratæ. *Caps.* 4-loc. calycis tubo truncato cincta.
1. *Chinensis.* China.
2. *Zeylanica.* Ceylon.
Lamarck thinks that this genus is not sufficiently distinct from MELASTOMA, and ought to be joined with it. *Encyc. Bot.* p. 607.
737. TETRATHECA. *Cal.* 4-fid. inferus. *Cor.* 4-pet. *Anth.* 4-loc. *Caps.* 2-loc. 2-valv. valvulis medio septiferis. *Sem.* subbina.
1. *Juncea.* New Holland.
*2. *Oppositifolia.* } In the *Herbarium* of Thibaud.
*3. *Ericæfolia.* } *Persoon.*
736. GRISLEA. *Cal.* 4-fid. *Pet.* 4, ex incisuris calycis. *Fil.* longissima, adscendentia. *Caps.* globosa, supera, 1-loc. polysperma.
1. *Secunda.* Warm parts of America. *Shrub.*
2. *Tomentosa.* India and China. *Shrub.*
750. KOELREUTERIA. *Cal.* 5-phyll. *Cor.* 4-pet. irregularis. *Nect.* squamæ 4, bifidæ. *Caps.* 3-loc. loculis 2 spermis.
1. *Paniculata.* China. *Shrub.*
*2. *Jussiæa.* (In the *Herbarium* of Jussieu unpublished.)
752. PERSOONIA, or CARAPA. *Cal.* 4-part. *Pet.* 4. *Nect.* cylindricum, 8-dent. antheras gerens. *Caps.* 1-loc. 4-valv. *Nuces* difformes angulatæ numerosæ.
1. *Guareoides*, or *Guianensis.* Woods of Guiana. *Shrub.*
*2. *Molluccensis.* Molucca Isles. (*Lamarck.*)
753. GUAREA. *Cal.* 4-dent. *Pet.* 4. *Nect.* cylindricum, ore *Antheras* gerens. *Caps.* 4 loc. 4-valv. *Sem.* solitaria.
1. *Trichilioides.* Brasil and West Indies. *Shr.*
741. CORREA. *Cal.* campan. 4-dent. *Cor.* 4-pet. petali apice reflexis. *Caps.* 4-loc. 4-valv. loculis 1-spermis.
1. *Alba.* New Holland. *Shrub.*
*2. *Rufa.* } New Holland. See Labill. *Voy-*
*3. *Reflexa.* } *age*, &c. and Persoon, *Synop.*
*4. *Revoluta.* }
733. ANTICHORUS. *Cal.* 4-phyll. *Pet.* 4. *Caps.* supera, subulata, 4-loc. 4-valv. *Sem.* plurima.
1. *Depressus.* Arabia. *Ann.*
740. ALLOPHYLLUS. *Cal.* 4-phyll. foliolis orbiculatis, oppositis minoribus. *Pet.* 4, calyce minora. *Germ.* didymum. *Stig.* 4-fid.
1. *Zeylanicus.* Ceylon. *Shrub.*
Given under ORNITHROPHE by Persoon.
739. ORNITHROPHE. *Cal.* 4-part. *Cor.* 4-pet. *Styl.* 2-fid. *Germ.* didymum. *Bac.* 2, 1-spermæ.
1. *Integrifolia.* Bourbon. *Shrub.*
2. *Serrata.* Mts. in the East Indies. *Shrub.*
3. *Cobbe.* Ceylon. *Shrub.*
4. *Cominia.* Mts. in the W. of Jamaica. *Shr.*
5. *Occidentalis.* Spain. *Shrub.*
6. *Rigida.* Barren parts of Hispaniola. *Shrub.*
*7. *Schmiedelia.* (*Schmiedelia racemosa* of Willd.)
744. JAMBOLIFERA. *Cal.* 4-dent. *Cor.* 4-pet. infundib. *Fil.* planiuscula. *Stig.* simplex.
1. *Pedunculata.* India. *Shrub.*

746. Xylocarpus. *Cal.* 4-dentatus. *Cor.* 4-petala. *Nectar.* 8-fidum. *Filam.* nectario inserta. *Drupa* exsucca magna 4 seu 5-ciliata. *Nuces* 8-10, difformes.
1. *Granatum.* East Indies. *Shrub.*

757. Ximenia. *Cal.* 4-fid. *Pet.* 4, pilosa, revoluta. *Drupa* 1-sperma.
1. *Americana.* America. *Shrub.*
2. *Elliptica.* New Caledonia. *Shrub.*
3. *Inermis.* Jamaica. *Shrub.*

763. Lawsonia. *Cal.* 4-fid. *Pet.* 4. *Stam.* 4 parium. *Caps.* 4-loc., polysperma.
1. *Inermis.* India and Egypt. (The *Cyprus* of the ancients.) *Shrub.*
2. *Purpurea.* East Indies. (See *Persoon*, i. p. 416. *Shrub.*
3. *Acronychia.* New Caledonia. *Shrub.*
4. *Spinosa.* India. *Shrub.*

749. Melicocca. *Cal.* 4-part. *Pet.* 4, reflexa, infra calycem. *Stig.* subpeltatum. *Drupa* corticosa.
1. *Bijuga.* South America. *Shrub.*

755. Amyris. *Cal.* 4-dent. *Pet.* 4, oblonga. *Stig.* 4-gonum. *Bacca* drupacea.
1. *Polygama.* Chili. *Shrub.*
2. *Elemifera.* Carolina. *Shrub.*
3. *Sylvatica.* Woods of Carthagena. *Shrub.*
4. *Maritima.* America. *Shrub.*
5. *Kataf.* Arabia. *Shrub.*
6. *Gileadensis.* Arabia Felix. *Shrub.*
7. *Opobalsamum.* Arabia. *Shrub.*
8. *Enneandra.*
9. *Heterophylla.*
10. *Gujanensis.*
11. *Ambrosiaca.*
12. *Decandra.*
13. *Altissima.*

Sp. 8—13 shrubby, and from the woods of Guiana.
14. *Toxifera.* Carolina. *Shrub.*
15. *Protium.* East Indies. *Shrub.*
16. *Dentata.* East Indies. *Shrub.*
17. *Anisata.* Guinea. *Shrub.*
18. *Zeylanica.* Ceylon. *Shrub.*
19. *Balsamifera.* Jamaica. *Shrub.*
* 20. *Oleosa.* Molucca Isles. (*Lamarck.*)

Persoon ranks Sp. 8—13 under the subgenus Icica. *Synopsis*, i. p. 414.

764. Melicope. *Cal.* 4-part. *Cor.* 4-pet. *Nect.* glandulæ 4 didymæ germina cingentes. *Caps.* 4 1-spermæ.
1. *Ternata.* New Zealand. *Shrub.*

775. Gnidia. *Cal.* infundib. 4-fid. *Pet.* 4, calyci inserta. *Nux* subdrupacea.
1. *Pinifolia.*
2. *Radiata.*
3. *Filamentosa.*
4. *Carinata.*
5. *Scabra.*
6. *Simplex.*
7. *Capitata.*
8. *Lævigata.*
9. *Biflora.*
10. *Racemosa.*
11. *Tomentosa.*
12. *Argentea.*
13. *Imbricata.*
14. *Sericea.*
15. *Oppositifolia.*
16. *Daphnæfolia.*
* 17. *Juniperifolia.* (*Lamarck.*)
* 18. *Imberbis.* (*Flor. Peruv.* ii. p. 412.)

All shrubby, and from the Cape, except species 16, from Madagascar.

758. Fuchsia. *Cal.* 4-part. coloratus corollifer. *Cor.* 4-pet. *Bacca* infera, 4-loc. polysperma.
1. *Triphylla.* South America.
2. *Coccinea.* From Chili to the Straits of Magellan. *Shrub.*
3. *Excorticata.* New Zealand. *Shrub.*
4. *Multiflora.* America.
* 5. *Serratifolia.* Peru. *Shrub.*
* 6. *Denticulata.* Peru. *Ann.*
* 7. *Ovalis.* Groves of Munna. *Shrub.*
* 8. *Corymbiflora.* Groves of Peru.
* 9. *Macrostema.* Bogs of Chili. *Shr.*
* 10. *Decussata.* Peru.

See *Flor. Peruv.* iii. p. 86.

* 11. *Lycioides.* North America. (*Andrews.*)
* 12. *Simplicicaulis.* Woods of Peru.
* 13. *Rosea.* Chili.
* 14. *Apetala.* Groves of Peru.

See *Flor. Peruv.* iii. p. 89.

754. Hedwigia. *Cal.* 4-dent. *Cor.* tubulosa 4-fida. *Caps.* tricocca 3-loc. *Nuces* solitariæ quolibet loculo.
1. *Balsamifera.* Woody mountains in the western parts of Hispaniola. *Shrub.*

Persoon ranks this species under the genus Bursera.

760. Michauxia. *Cal.* 16-part. *Cor.* rotata 8-part. *Nect.* 8-valve staminiferum. *Caps.* 8-loc. polysperma.
1. *Campanuloides*, or *Strigosa.* In the East and Syria. *Bien.*
* 2. *Lævigata.* Persia. (*Ventenat.*)

‡ 759. Chlora. *Cal.* 8-phyll. *Cor.* 1-pet., 8-fida. *Caps.* 1-loc., 2-valvis, polysperma.
1. *Perfoliata.* England, Switzerland, France, Spain, Germany, and in the East. *Ann.*
2. *Quadrifolia.* South of Europe.
3. *Dodecandra.* Virginia.
4. *Sessilis.* Chili.
5. *Imperfoliata.* Extremity of Italy. *Ann.*

‡ 768. Vaccinium. *Cal.* superus. *Cor.* 1-pet. *Fil.* receptaculo inserta. *Bacca* 4-loc. polysperma. (Stam. 8-10.)
1. *Myrtillus.* England and other parts of Europe. *Shrub.*
2. *Pallidum.* North America. *Shrub.*
3. *Hirtum.* Japan. *Shrub.*
4. *Stamineum.* North America. *Shrub.*
5. *Uliginosum.* Britain, N. of Sweden. *Shrub.*
6. *Album.* Pennsylvania. *Shrub.*
7. *Mucronatum.* North America. *Shrub.*
8. *Diffusum.* South Carolina. *Shrub.*
9. *Angustifolium.* Newfoundland and Labrador. *Shrub.*
10. *Corymbosum.* North America. *Shrub.*
11. *Bracteatum.* Japan. *Shrub.*
12. *Ciliatum.* Japan. *Shrub.*
13. *Fuscatum.*
14. *Frondosum.*
15. *Venustum.*
16. *Ligustrinum.*
17. *Resinosum.*
18. *Amœnum.*
19. *Virgatum.*
20. *Tenellum.*

Sp. 13—20 shrubby, and from North America.
21. *Arctostaphylos.* Cappadocia and Madeira. *Shr.*
22. *Meridionale.* Blue Mountains in the South of Jamaica. *Shrub.*
23. *Cereum.* Island of Otaheite. *Shrub.*
24. *Vitis idæa.* Brit. and other parts of Eur. *Shr.*
25. *Oxycoccus.* Brit. and other parts of Eur. *Shr.*
26. *Hispidulum.* Bogs of N. America. *Shrub.*
27. *Macrocarpon.* Marshes of N. America. *Shr.*
* 28. *Myrtilloides.* North America. (*Michaux.*)
* 29. *Uliginosum.* England and Denmark.
* 30. *Cæspitosum.* At Hudson's Bay. (*Mich.*)
* 31. *Cereum.* Otaheite.
* 32. *Dumosum.* North America. (*Andrews.*)
* 33. *Glaucum.* Pennsylv. and Carol. *Shr.*
* 34. *Arboreum.* North America.

Mich.

* 35. *Pallidum.* N. America. *Shrub.* (*Fl. Kew.*)

7. *Orientalis.* In the East, and in Spain. *Shrub.*

8. *Ciliata.* Cape of Good Hope. *Shrub.*

9. *Uniflora.* Ethiopia. *Shrub.*

10. *Grandiflora.* Africa. *Shrub.*

11. *Canescens.* Morocco. *Shrub.*

12. *Spicata.* 15. *Anthylloides.*

13. *Laxa.* 16. *Pentandra.*

14. *Stricta.*

* 17. *Salsolæfolia.*

* 18. *Globosa.* Cape of Good Hope. *Shrub.*

* 19. *Nivalis.* Pyrenees.

* 20. *Tinctoria.* South of France.

* 21. *Virgata.* Barbary. (*Desfont.*)

* 22? *Striata.* (*Poiret.*)

Species 12—16 shrubby, and from the Cape. Persoon ranks under this genus species 3, 4, of DAPHNE.

776. STELLERA. *Cal.* 0. *Cor.* 4-fida. *Stam.* brevissima. *Nux* 1, rostrata.

1. *Passerina.* Dry fields of Germany, Switzerland, and Italy. *Ann.*

2. *Chamæjasme.* Siberia. *Peren.*

* 3. *Altaica.* Altaian mountains. (*Thiebaut.*)

761. DODONÆA. *Cal.* 4-phyll. *Cor.* 0. *Caps.* 3-loc. trialata. *Sem.* 2.

1. *Viscosa.* East and West Indies. *Shrub.*

2. *Triquetra.* New Holland. *Shrub.*

3. *Angustifolia.* Cape of Good Hope, India, and Jamaica. *Shrub.*

762. VALENTINIA. *Cal.* 5-part. coloratus patens. *Cor.* 0. *Caps.* baccata 4-sperma pulposa.

1. *Ilicifolia.* Hispaniola and Cuba. *Shrub.*

756. CEDROTA. *Cal.* 6-part. laciniis concavis. *Cor.* 0. *Germen* glandula cinctum.

1. *Longifolia.* Woods of Guiana. *Shrub.*

ORDER II. DIGYNIA.

783. CODIA. *Cal.* 4-phyll. *Cor.* 4-pet. *Receptac.* commune involucratum. *Involucr.* 4-phyll.

1. *Montana.* New Caledonia. *Shrub.*

782. WEINMANNIA. *Cal.* 4-phyll. *Cor.* 4-pet. *Caps.* 2-loc. birostris.

1. *Glabra.* Jamaica. *Shrub.*

2. *Hirta.* High mountains in the south of Jamaica. *Shrub.*

3. *Tomentosa.* New Granada. *Shrub.*

4. *Trifoliata.* Cape of Good Hope. *Shrub.*

5. *Racemosa.* New Zealand. *Shrub.*

6. *Parviflora.* Island of Otaheite. *Shrub.*

* 7. *Trichosperma.* At San Carlos in Chili. (*Cav.*)

* 8. *Ovata.* Peru. } Cavan.

* 9. *Paniculata.* Coasts of Chili. } *Icones.*

784. MŒHRINGIA. *Cal.* 4-phyll. *Pet.* 4. *Caps.* 1-loc. 4-valvis.

1. *Muscosa.* Alps. *Peren.*

780. SCHMIEDELIA. *Cal.* 2-phyll. *Cor.* 4-pet. *Germina* pedicellata, flore longiora.

1. *Racemosa.* In the East Indies. *Shrub.*

This genus is given under ORNITROPHE by Persoon.

781. GALENIA. *Cal.* 4-fidus. *Cor.* 0. *Caps.* subrotunda, 2-sperma.

1. *Africana.* Africa. *Shrub.*

2. *Procumbens.* Cape of Good Hope.

ORDER III. TRIGYNIA.

788. SERIANA. *Cal.* 5-phyll. *Pet.* 4. *Nect.* 4-phyll. *Samaræ* 3, longitudinaliter connatæ globosæ, inferne in alam membranaceam dilatatum.

1. *Sinuata.* Warm parts of America. *Shrub.*

2. *Divaricata.* Woods of Jamaica. *Shrub.*

3. *Caracasana.* Caraccas. *Shrub.*

4. *Racemosa.* Vera Cruz. *Shrub.*

5. *Spectabilis.* America. *Shrub.*

6. *Mexicana.* Mexico. *Shrub.*

7. *Angustifolia.* Warm parts of Amer. *Shrub.*

8. *Lupulina.* America. *Shrub.*

9. *Lucida.* Island of Santa Cruz. *Shrub.*

10. *Triternata.* America. *Shrub.*

787. PAULLINIA. *Cal.* 5-phyllus. *Pet.* 4. *Nect.* 4-phyll. inæquale. *Caps.* turbinata 3-gona, 3-loc. loculis 1-spermis.

1. *Nodosa.* America. *Shrub.*

2. *Curura.* Warm parts of America. *Shrub.*

3. *Carthaginensis.* Carthagena. *Shrub.*

4. *Caribæa.* The Caribbees. *Shrub.*

5. *Curassavica.* Curaçoa. *Shrub.*

6. *Barbadensis.* Barbadoes. *Shrub.*

7. *Polyphylla.* Warm parts of America. *Shrub.*

8. *Tetragona.* Cayenne. *Shrub.*

9. *Vespertilio.* St Christopher's Amer. *Shrub.*

10. *Pinnata.* Brasil, Jamaica, and St Domingo. *Shrub.*

11. *Tomentosa.* America. *Shrub.*

12. *Cauliflora.* America and the Caraccas. *Sh*

13. *Japonica.* Japan. *Peren.*

14. *Diversifolia.* America. *Shrub.*

* 15. *Meliæfolia.* Brasil. *Shrub.* } Juss. *An*

* 16. *Thalictrifolia.* Brasil. *Shrub.* } *Mus.* p.35.

* 17. *Acutangula.* Groves of Peru. } *Flor. Per.*

* 18. *Obovata.* Groves of Peru. } p. 93.

* 19. *Senegalensis.* Senegal. } Jussieu, *Id.*

* 20. *Sphærocarpa.* Guinea. }

* 21. *Subrotunda.* Groves of Peru. (*Fl. Per.*

* 22. *Cupaniæfolia.* Guiana.

* 23. *Connarifolia.* Guiana. }

* 24. *Fibulata.* Guiana. } Jussieu, *Id.*

* 25. *Rufescens.* Guiana. }

* 26. *Ingæfolia.* Guiana. }

789. CARDIOSPERMUM. *Cal.* 4-phyll. *Pet.* 4. *Ne* 4-phyll. inæquale. *Caps.* 3, connatæ, inflatæ.

1. *Halicacabum.* Indies. *Ann.*

2. *Hirsutum.* Guinea.

3. *Corindum.* Brasil. *Ann.*

4. *Grandiflorum.* Jamaica. *Shrub.*

791. PONÆA. *Cal.* 5-part. *Cor.* 4-pet. *Caps.* 3-l 3-alata; loculis 1-spermis.

1. *Saponarioides.* Woods of Guiana. *Shr*

790. SAPINDUS. *Cal.* 4-phyll. *Pet.* 4. *Caps.* car sæ, connatæ, ventricosæ.

1. *Saponaria.* Warm parts of America. *Shr*

2. *Longifolius.* East Indies. *Shrub.*

3. *Spinosus.* Jamaica. *Shrub.*

4. *Laurifolius.* Malabar. *Shrub.*

5. *Emarginatus.* East Indies. *Shrub.*

6. *Rubiginosus.* East Indies. *Shrub.*

7. *Tetraphyllus.* East Indies. *Shrub.*

8. *Rigidus.* America. *Shrub.*

9. *Arborescens.* Woods of Guiana. *Shrub.*

10. *Frutescens.* Woods of Guiana. *Shrub.*

786. Coccoloba. *Cal.* 5-part. coloratus. *Cor.* 0. *Bacca* calycina, 1-sperma.

1. *Uvifera.* America. *Shrub.*
2. *Australis.* New Zealand. *Shrub.*
3. *Pubescens.* America. *Shrub.*
4. *Diversifolia.* St Domingo. *Shrub.*
5. *Flavescens.* St Domingo. *Shrub.*
6. *Excoriata.* America. *Shrub.*
7. *Nivea.* Mountains of Jamaica. *Shrub.*
8. *Punctata.* America. *Shrub.*
9. *Obtusifolia.* Woods of Carthagena. *Shrub.*
10. *Microstachya.* West Indies. *Shrub.*
11. *Emarginata.* Warm parts of Amer. *Shrub.*
12. *Barbadensis.* Barbadoes. *Shrub.*
13. *Tenuifolia.* Jamaica. *Shrub.*
* 14. *Latifolia.* South America. (*Encyc. Bot.*)

‡ 785. Polygonum. *Cal.* 0. *Cor.* 5-part. calycina. *Sem.* 1, angulatum. (*Stam.* et *Styli* numero incerti.)

1. *Frutescens.* Siberia and Dauria. *Shrub.*
2. *Grandiflorum.* In the East. *Shrub.*
3. *Bistorta.* England, Switzerland, Austria, Germany, and France. *Peren.*
4. *Viviparum.* Europe. *Peren.*
5. *Virginianum.* Britain and Virginia. *Peren.*
6. *Lapathifolium.* England and France. *Ann.*
7. *Amphibium.* England, and other parts of Europe. *Peren.*
8. *Ocreatum.* Siberia.
9. *Hydropiper.* England, and other parts of Europe. *Ann.*
10. *Filiforme.* Japan.
11. *Tinctorium.* China. *Bien.*
12. *Minus.* England, Germany, Switzerland, Italy, France. *Ann.*
13. *Persicaria.* England and other parts of Europe. *Ann.*
14. *Incanum.* Germany, Bohemia, Bavaria, Switzerland. *Ann.*
15. *Glabrum.* East Indies.
16. *Barbatum.* China.
17. *Tomentosum.* Ceylon.
18. *Orientale.* East Indies. *Ann.*
19. *Pensylvanicum.* Pennsylvania.
20. *Maritimum.* Shores of the Mediterranean, Virginia, and in the East. *Shrub.*
21. *Aviculare.* England, and other parts of Europe. *Ann.*
22. *Bellardi.* Fields of Piedmont. *Ann.*
23. *Setosum.* Armenia. *Peren.*
24. *Erectum.* Philadelphia. *Ann.*
25. *Articulatum.* Canada. *Ann.*
26. *Divaricatum.* Siberia. *Peren.*
27. *Alpinum.* Mountains of Switzerland, Savoy, and Corsica. *Peren.*
28. *Undulatum.* Stony and damp parts on the mountains of Siberia. *Peren.*
29. *Sericeum.* Siberia, Lake Baikal. *Peren.*
30. *Serratum.* Barbary.
31. *Corymbosum.* Java.
32. *Chinense.* India, China.
33. *Sagittatum.* Virginia and Maryland. *Ann.*
34. *Arifolium.* Virginia, Florida.
35. *Crassifolium.* Siberia at the Jenisey.
36. *Perfoliatum.* India.
37. *Tataricum.* Tartary. *Ann.*
38. *Emarginatum.* China. *Ann.*
39. *Fagopyrum.* England and other parts of Europe, and in Asia. *Ann.*
40. *Convolvulus.* England, and other parts of Europe. *Ann.*
41. *Dumetorum.* Shady woods in the south of Europe. *Ann.*
42. *Scandens.* America. *Peren.*
43. *Multiflorum.* Japan. *Peren.*
* 44. *Polygamum.* Dry parts of Carolina. *Shrub.*
* 45. *Ramosissimum.* Country of the Illinois.
* 46. *Tenue.* Canada.
* 47. *Mite.* North America.
* 48. *Hirsutum.* Lower Carolina.

See Michaux, *Flor. Bor. Amer.* ii. p. 240.

* 49. *Arenarium.* Sands in Hungary. (*Plant. Hun.*)
* 50. *Barbatum.* China.
* 51. *Australe.* New Holland.
* 52. *Elegans.* East Indies. *Shrub.* (*Hort. Kew.*)
* 53. *Prostratum.*
* 54. *Subsessile.* } *Sta.* 5.
* 55. *Plebeium.*
* 56. *Articulatum.*
* 57. *Strigosum.* } *Sta.* 5, 6.
* 58. *Lanigerum.*
* 59. *Glandulosum.* } *Sta.* 6.
* 60. *Elatius.*
* 61. *Decipiens.* } *Sta.* 6.
* 62. *Orientale.* *Stam.* 7.
* 63. *Attenuatum.*
* 64. *Adpressum.* } *Sta.* 8.
* 65. *Gracile.* *Stam.* 4.

Sp. 53—65 are all from New Holland and Van Diemen's Island, and are given by Mr Brown with the following generic character: "*Perianth.* profunde 5-fid. (nunc 4-fid.) semipetaloideum. *Stam.* 4-9. *Styl.* 2-3-partit. *Stig.* totidem, capitata. *Nux* perianthio (quandoque baccato) tecta. *Embryo* unilateralis.

Order IV. Tetragynia.

‡ 794. Adoxa. *Cal.* 2-fid. inferus. *Cor.* 4. seu 5-fida, supera. *Bacca* 4 seu 5-loc. calyce coalita.

1. *Moschatellina.* England and other parts of Europe. *Peren.*

792. Verea, (or Calanchoe. *Persoon.*) *Cal.* 4-phyllus. *Cor.* hypocrateriformis 4-fida, tubo ventricoso. *Squamæ* nectarif. 4 ad basin germinum. *Capsulæ* 4-superæ 1-loc. polyspermæ.

1. *Crenata.* Sierra Leone. *Shrub.*
* 2. *Lanceolata.* Arabia.
* 3. *Laciniata.* Bourbon and the Moluccas.
* 4. *Ægyptiaca.* Egypt.
* 5. *Pinnata.* Mauritius.
* 6. *Alternans.* Arabia.

See Persoon, *Synopsis*, i. p. 446.

796. Haloragis. *Cal.* 4-phyll. superus. *Pet.* 4. *Drupa* sicca. *Nux* 4-loc.

1. *Cercodia.* New Zealand. *Shrub.*
2. *Prostrata.* Botany Island, and New Caledonia. *Shrub.*

‡ 795. Elatine. *Cal.* 4-phyllus. *Pet.* 4. *Caps.* 4-loc. 4-valv. depressa.

1. *Hydropiper.* Europe. *Ann.*
2. *Alsinastrum.* England, Abo, Leipsic, Paris, Montpellier, and Switzerland.

‡ 793. Paris. *Cal.* 4-phyll. *Pet.* 4, angustiora. 4-loc.

1. *Quadrifolia.* England and other parts of Europe. *Peren.*

797. Forskolea. *Cal.* 4-phyll. corolla longior. *Pet.* 8. spathulata. *Pericarp.* 0. *Sem.* 4 lana connexa.

1. *Tenacissima.* Egypt. *Ann.*
2. *Candida.* Cape of Good Hope. *Peren.*
3. *Angustifolia.* Teneriffe. *Ann.*

NEW GENERA.

MONOGYNIA.

New Genera.

I. BORONIA. *Cal.* 4-part. *Pet.* 4. *Anth.* infra apicem filamentorum pedicellatæ. *Styl.* ex apice germinis, brevissimus. *Stig.* capitatum. *Caps.* 4, coalitæ. *Sem.* arillata. (*Smith.*)

1. *Pinnata.* New South Wales. *Shrub.*

II. BLIGHIA. *Cal.* 5-part. *Pet.* 5, duplicata. *Styl.* 0. *Caps.* carnosa, 3-valv. 3-loc. *Sem.* solitaria, arillo maximo insidentia. (*Koenig.*)

1. *Sapida.* Tropical Africa. *Shrub.* (*Annals of Bot.* ii. p. 571.)

III. MAGALLANA. *Cal.* 3-part. calcaratus. *Pet.* 5, inæqualia. *Fruct.* 3-alatus, 1-spermus (per abortum.) *Sem.* oblongum. (*Fil.* basi breviter coalitæ.) (*Persoon.*)

1. *Parvifolia.* South America. (*Cavanilles.*)

IV. EUPHORIA. *Cal.* 5-phyll. *Pet.* 5, reflexa, medio intus subvillosa. *Baccæ* 2 (altera plerumque abortiva) corticosa tuberculata, 1-loc. 1-sperma. (*Stam.* 6 sæpius 8. *Juss.* *Stam.* 7. *Lamarck.*)

1. *Punicea.* (*Dimocarpus litschi.*⎫ See Persoon,
2. *Longana.* China. *Shrub.* ⎭ *Syn.* i. p. 413.

V. THOUINIA. *Cal.* 4-part. *Pet.* 4, medio villosa. *Stig.* 3-fid. *Caps.* 8, 1-spermæ alatæ.

1. *Simplicifolia.* Dominique.⎫ Poiteau, *Annal.*
2. *Trifoliata.* Dominique. ⎭ *du Mus.* Fasc. 13.

This genus is different from the THOUINIA of Willdenow.

VI. BURSERA. *Cal.* 3-4-fid. *Pet.* 4, ovata. *Caps.* subcarnosa, 3-loc. 3-valv. *Sem.* solitaria.

1. *Gummifera.* West of America.
2. *Balsamifera.* (*Hedwigia balsamifera* of Willdenow.)

VII. NIOTA. *Cal.* 4-fid. *Pet.* 4-5. *Anth.* sagittatæ. *Stig.* acutum. *Caps.* lignosa, 1-sperma.

1. *Tetrapetala.* East Indies.⎫ Poiret, *Encyc.*
2? *Pentapetala.* Malabar. ⎭ *Bot.* iv. p. 490.

VIII. JEFFERSONIA. *Cal.* 5-phyll. coloratus, deciduus. *Cor.* 8-pet. incurvo-patentia. *Stam.* ovarium ambientia. *Caps.* obovata, substipitata, 1-loc. infra apicem dehiscens. *Sem.* plura, oblonga, ad basin arillata. (*B. Smith Barton.*)

1. *Diphylla.* Western mountains of Tenassee. (Barton, *Act. Phil.*)

IX. NEÆA. *Involucr.* 2-3-phyll. squamæforme. *Cor.* tubulosa. *Stam.* cor. breviora, alternantia longiora. *Drupa* 1-sperma, coronata. *Nucleus* tunicatus. (*Flor. Peruv.* p. 90.)

1. *Verticillata.* Groves of Peru.
2. *Oppositifolia.* Woods of Peru. *Shrub.*

X. OXYCOCCUS. *Cal.* superus, 4-fid. *Cor.* 4-part. laciniis sublinearibus revolutis. *Fil.* conniventia. *Anth.* tubulosæ, 2-part. *Bacca* polysperma.

1. *Erythrocarpus.* Mountains of North Carolina. *Shrub.* (*Michaux.*)

This genus contains also *Vaccinium oxycoccus* and *hispidulus.* It differs from vaccinium in habit, and particularly in the form of the corolla.

XI. LAGETTA. *Cor.* supera, caduca, tubulosa 4-dent. glandulis 4 petaliformibus. *Cor.* insertis. *Drupa* pilosa, pisiformis, 1-sperma infera. *Lam.* tecta.

1. *Lintearia.* (*Daphne lagetto* of *Willd.*)

TRIGYNIA.

XII. CORNIDIA. *Cal.* obtuse 3-gonus, integerrimus, semisuperus, germine accretus. *Cor.* 4-pet. *Styli* divergentes. *Caps.* 3-corniculata, 3-loc. 3-valv. *Sem.* numerosa. (*Flor. Peruv.* p. 91.)

1. *Umbellata.* Groves of Peru.

TETRAGYNIA.

XIII. PORLIERA. *Cal.* 4-phyll. æqualis. *Pet.* obovata, conniventia. *Squamæ* nectariferæ seu *stamina* æqualia, dorso nectarii inserta. *Drupa* 4, connatæ. (*Flor. Peruv.*)

1. *Hygrometra.* Peru. (*Flor. Peruv.* p. 55.)

This genus has a great affinity to *Guajacum.*

XIV. FRANCOA. *Cal.* 4-part. persistens. *Cor.* 4-pet. *Stylus* 0. *Stig.* plana. *Caps.* 4, basi connatæ, carinatæ. *Sem.* numerosa, suturis carinarum affixa.

1. *Appendiculata.* Island of San Carlos. (*Cavanilles.*)

XV. GALVESIA. *Cal.* 4-phyll. *Pet.* sessilia. *Stam.* 4, alternantia breviora. *Corpus* glandulosum sub germine. *Drupæ* 4. (*Flor. Peruv.* i. p. 29.)

1. *Punctata.* Groves of Chili.

REMARKS ON THE CLASS OCTANDRIA.

The following plants might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

MONOGYNIA.

Dais *octandra.* Richardia *scabra.* Andromeda *octandra, ericoides, lycopodioides.* Elæocarpus *serratus.* Some species of Diospyrus. Rivina *octandra.* Several species of Jussieua. The lateral flowers of Ruta. Fagara *octandra, elaphrium.* Rhizophora *mangle.* Ammannia *sanguinolenta, octandra.* Several species of Melastoma. Trichilia *pallida.* Portulaca *quadrifida, meridiana.* Zygophyllum *morgsana.* Cleome *juncea.* Capparis *ferruginea.* The lateral flowers of Monotropa *hypopithys.* Several species of Casearia. Petiveria *alliacea.* Limonia *monophylla.* Æsculus *pavia.* Quivisia *ovata, heterophylla.* Some species of Samyda.

NEW GENERA.

[illegible]

[illegible]

[illegible] Pet. [illegible] Legumen.

1. [illegible] [illegible] ii. p. [illegible]

III. Eriogonum. Cal. [illegible] sem. 1-spermum, cal. tectum. (Flor. pedicellati e communi involucro campanulato proveniunt.)

1. Tomentosum. Carolina and Georgia. (Michaux, i. p. [illegible])

TRIGYNIA.

IV. Pleea. *Cor.* 6-part. patens. *Caps.* subrotunda trigona (tres conjunctae?) 3-loc. septo non manifesto. Sem. numerosa, oblonga, margini valvularum adnexa. (Spica spathis 1-floris.)

1. Tenuifolia. Lower Carolina. (*Michaux*, i. p. [illegible])

Persoon seems to think that this genus should be united to Tofieldia, as they seem to differ only in the number of stamina. *Synopsis*, i. p. 451.

REMARKS ON THE CLASS ENNEANDRIA.

The following plants being enneandrous might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

MONOGYNIA.

[illegible] enneandra. Gardenia *thunbergia.* Guettarda [illegible]. [illegible] *enneandra.*

CLASS X. DECANDRIA.

Class X. Decandria

ORDER I. MONOGYNIA.

Sect. I. *Flowers Monopetalous, Irregular.*

805. Sophora. *Cal.* 5-dent. superne gibbus. *Cor.* papilionacea: alis longitudine vexilli. *Lomentum* moniliforme.

1. *Tetraptera.* New Zealand. *Shrub.*
2. *Microphylla.* New Zealand.
3. *Flavescens.* Siberia. *Peren.*
4. *Alopecuroides.* In the East. *Peren.*
5. *Tomentosa.* Ceylon. *Shrub.*
6. *Occidentalis.* America. *Shrub*
7. *Japonica.* Japan. *Shrub.*
8. *Heptaphylla.* India. *Shrub.*
9. *Monosperma.* Jamaica, and other West India islands. *Shrub.*

* 10. *Obliqua.* South America. (*Herbar.* of Thibaud.)

* 11. *Retusa.* Mauritius. (*Persoon.*)

* 12? *Argentea.* (*Podalyria argentea* of Willd.)

806. Podalyria. *Cal.* subbilabiatus 5-fid. *Cor.* papilionacea, alæ vexilli longitudine. *Legumen* ventricosum polyspermum.

1. *Capensis.* Cape of Good Hope. *Shrub.*
2. *Aurea.* Abyssinia. *Shrub.*
3. *Argentea.* Siberia. *Shrub.*
4. *Genistoides.* Cape of Good Hope. *Shrub.*
5. *Ternata.* Cape of Good Hope. *Shrub.*
6. *Australis.* Carolina. *Peren.*
7. *Tinctoria.* Barbadoes and Virginia. *Peren.*
8. *Alba.* Carolina. *Peren.*
9. *Lupinoides.* Kamschatka. *Peren.*
10. *[illegible]*
11. *Calyptrata.*
12. *Biflora.*
13. *Myrtillifolia.*
14. *Hirsuta.*
15. *Buxifolia.*

* 16. *[illegible]* North Carolina.

* 17. *Mollis.* Upper Carolina.

* 18. *Perfoliata.* Dry parts of Carolina.

* 19. *Uniflora.* Carolina and Georgia.

See Michaux, *Fl. Bor. Amer.* i. p. 207.

* 20. *[illegible]* Senegal. (*Lamark.*)

* 21. *[illegible]* Cape of Good Hope. (*Ventenat.*)

Species 10—15 shrubby, and from the Cape.

807. Pultenæa. *Cal.* 5-dent. utrinque appendiculatus. *Cor.* papilionacea, alis vexillo brevioribus. *Legumen* uniloculare dispermum.

1. *Stipularis.*
2. *Paleacea.*
3. *Linophylla.*
4. *Juncea.*
5. *Villosa.*
6. *Daphnoides.*

* 7. *Tuberculata.* (*Herb.* of Thibaud.)

Species 1—6 shrubby, and from New Holland.

808. Anagyris. *Vexillum alæque* carina breviores in corolla papilionacea. *Legumen.*

1. *Fœtida.* Mts. of Italy, Sicily and Spain. *Shr.*

809. Cercis. *Cal.* 5-dent. inferne gibbus. *Cor.* papilionacea: vexillo sub alis brevi. *Legumen.*

1. *Siliquastrum.* Italy, Spain, Narbonne, and the East. *Shrub.*
2. *Canadensis.* Virginia. *Shrub.*

810. Bauhinia. *Cal.* 5-fid. deciduus. *Pet.* patula, oblonga, unguiculata: superiore magis distante, omnia calyci inserta. *Legumen.*

1. *Scandens.* Malabar, Amboyna, and Cumana. *Shrub.*

Class X. Decandria.

2. *Parviflora.* East Indies. *Shrub.*
3. *Racemosa.* East Indies. *Shrub.*
4. *Aculeata.* Warm parts of America. *Shrub.*
5. *Divaricata.* America. *Shrub.*
6. *Aurita.* Jamaica. *Shrub.*
7. *Porrecta.* Jamaica and Hispaniola. *Shrub.*
8. *Ungulata.* America. *Shrub.*
9. *Variegata.* Malabar, and sandy parts of Madeira. *Shrub.*
10. *Candida.* East Indies. *Shrub.*
11. *Purpurea.* Sandy parts of India. *Shrub.*
12. *Tomentosa.* India. *Shrub.*
13. *Acuminata.* East Indies. *Shrub.*
14. *Gujanensis.* Woods of Guiana. *Shrub.*
15. *Rubescens.* Africa. *Shrub.*

*16. *Diphylla.* India. (Syme's *Embassy to Ava.*)
*17. *Pes capræ.* S. America. *Shr.*
*18. *Latifolia.* *Shrub.*
*19. *Rotundifolia.*
*20. *Lunaria.*
*21. *Pauletia.* Near Panama.
*22. *Inermis.* Near Acapulco.
*23? *Latisiliqua.* Philippine Isles.

See Cavanilles, *Icones*, 5. p. 3. t. 404.

Cavanilles has, without sufficient reason, constituted a new genus, *Pauletia*, of Sp. 21, 22. Persoon's *Synopsis*, i. p. 455.

811. HYMENÆA. *Cal.* 5-part. *Pet.* 5, subæqualia. *Styl.* intortus. *Legum.* repletum pulpa farinacea.
1. *Courbaril.* South America. *Shrub.*
2. *Venosa.* Cayenne. *Shrub.*
3. *Verrucosa.* Madagascar. *Shrub.*

829. MYROXYLON. *Cal.* campan. 5-dentatus. *Pet.* 5, supremo reliquis majore. *Germen.* corolla longius. *Legum.* apice 1-spermum.
1. *Peruiferum.* Warmest parts of Terra Firma. *Shrub.*
2. *Pedicellatum.* Peru. *Shrub.*
3. *Frutescens.* Carthagena. *Shrub.*

812. PARKINSONIA. *Cal.* 5-fid. *Pet.* 5, ovata: infimo reniformi. *Styl.* 0. *Lomentum* moniliforme.
1. *Aculeata.* Warm parts of America. *Shrub.*

815. CÆSALPINIA. *Cal.* 5-part. lacinia infima majori subfornicata. *Pet.* 5. *Stam.* basi lanata omnia fœcunda. *Legum.* compressum.
1. *Bijuga*, or *Vesicaria.* Jamaica. *Shrub.*
2. *Pulcherrima.* East and West Indies. *Shrub.*
3. *Elata.* India. *Shrub.*
4. *Coriaria.* Coasts of Curaçoa and Carthagena. *Shrub.*
5. *Brasiliensis.* Carolina, Jamaica, and Brasil. *Shrub.*
6. *Echinata.* Brasil. *Shrub.*
7. *Sappan.* East and West Indies. *Shrub.*
8. *Crista.* Jamaica. *Shrub.*
9. *Mimosoides.* East Indies. *Shrub.*

*10. *Bahamensis.* Bahama and Jamaica. (Lam. *Encyc.*)

828. TOLUIFERA. *Cal.* dent. campan. *Pet.* 5 infimo maximo, obcordato. *Styl.* 0.
1. *Balsamum.* America, near Carthagena. *Shr.*

813. CASSIA. *Cal.* 5-phyll. *Pet.* 5. *Anth.* supremæ 3, steriles; infimæ 3, rostratæ. *Lomentum.*
1. *Diphylla.* India. *Ann.*
2. *Absus.* India and Egypt. *Ann.*
3. *Viminea.* Woods on the highest mountains of Jamaica. *Shrub.*
4. *Baccilaris.* Surinam. *Shrub.*
5. *Tagera.* India.
6. *Tora.* India. *Ann.*
7. *Bicapsularis.* India. *Shrub.*
8. *Emarginata.* Caribbees. *Shrub.*
9. *Obtusifolia.* Cuba and Jamaica, rubbishy parts. *Ann.*
10. *Sennoides.* East Indies. *Shrub.*
11. *Acuminata.* Woods of Guiana. *Shrub.*
12. *Corymbosa.* Buenos Ayres. *Shrub.*
13. *Longisiliqua.* America. *Shrub.*
14. *Falcata.* America. *Ann.*
15. *Sericea.* Grassy hills of Jamaica. *Ann.*
16. *Occidentalis.* Jamaica. *Shrub.*
17. *Planisiliqua.* Warm parts of America. *Shr.*
18. *Fistula.* India, Egypt. *Shrub.*
19. *Patula.* West Indies. *Shrub.*
20. *Lineata.* Cultivated parts of Jamaica. *Per.*
21. *Atomaria.* America.
22. *Pilosa.* Dry fields in the south of Jamaica.
23. *Arborescens.* East Indies. *Shrub.*
24. *Senna.* Egypt. *Ann.*
25. *Ruscifolia.* Rocks of Madeira. *Shrub.*
26. *Biflora.* America. *Shrub.*
27. *Chinensis.* Pekin in China. *Shrub.*
28. *Multiglandulosa.* Island of Teneriffe. *Shrub.*
29. *Hirsuta.* America.
30. *Tomentosa.* South America. *Shrub.*
31. *Serpens.* Dry pastures of Jamaica. *Ann.*
32. *Mexicana.* Mexico. *Shrub.*
33. *Angustifolia.* Arabia. *Shrub.*
34. *Ligustrina.* Virginia and Bahama. *Shrub.*
35. *Florida.* East Indies. *Shrub.*
36. *Stipulacea.* Chili. *Shrub.*
37. *Alata.* Warm parts of America. *Peren.*
38. *Marilandica.* Virginia and Maryland. *Per.*
39. *Fastigiata.* East Indies. *Shrub.*
40. *Frondosa.* East Indies. *Shrub.*
41. *Tenuissima.* Havannah. *Shrub.*
42. *Virgata.* Jamaica and Hispaniola. *Shrub.*
43. *Sophera.* Shady parts of India.
44. *Bracteata.* Surinam.
45. *Auriculata.* India.
46. *Brevifolia.* Madagascar. *Shrub.*
47. *Mollis.* South America. *Shrub.*
48. *Javanica.* East Indies. *Shrub.*
49. *Grandis.* Surinam. *Shrub.*
50. *Nigricans.* Arabia Felix. *Shrub.*
51. *Polyphylla.* Porto Rico. *Shrub.*
52. *Chamæchrista.* Jamaica, Barbadoes, and Virginia. *Ann.*
53. *Glandulosa.* Jamaica and Guadaloupe.
54. *Mimosoides.* Ceylon.
55. *Microphylla.* Island of Santa Cruz.
56. *Flexuosa.* Brasil. *Ann.*
57. *Capensis.* Cape of Good Hope.
58. *Nictitans.* Virginia. *Ann.*
59. *Procumbens.* Indies, dry parts of Virginia. *Ann.*

*60. *Aphylla.* North America. (*Cavanilles.*)
*61. *Lanceolata.* Cayenne. (*Herbar.* of Lamarck.)
*62. *Rotundifolia.* South America. *Shrub.* (*Herbar.* of Jussieu.)
*63. *Apocouita.* Guiana. (Aublet. *Guian.*)
*64. *Linearis.* Carolina. *Ann.* (*Michaux.*)

[illegible] Cal. 5-fid. Pet. 5, æqualia obcordata. [illegible]rmum.
[illegible]. Arabia Felix. Shrub.

[illegible]NTHERA. Cal. 5-dent. Pet. 5. Anth. [illegible] glandulæ globosæ affixæ. Legum. [illegible].
[illegible]. India. Shrub.
[illegible]. India. Shrub.
[illegible]. Island of Mallicollo. Shrub.

[illegible]TOXYLON. Cal. 5-part. Pet. 5. Caps. [illegible] 1-locul. 2-valv. valvis navicularibus.
[illegible] Campechianum. Campechy America. Shr.

[illegible]IBERTIA, or QUIVISIA of Persoon. Cal. 4-[illegible] Cor. 4-5 pet. Nect. cylindricum, trunca-[illegible] Anth. margini nectarii insertæ. Caps. 4-[illegible] loculis submonospermis.
Decandra. Island of Mauritius. Shrub.
2. [illegible]ata. Island of Bourbon. Shrub.
Heterophylla. Island of Bourbon.
4. Oppositifolia. Island of Bourbon. Shrub.

TRICHILIA. Cal. sub 5-dent. Pet. 5. Nect. [illegible] cylindricum, in apice dentium antheras gerens. Caps. 3-locul. 3-valv. Sem. baccata.
1. Hirta. Jamaica. Shrub.
2. Spondioides. Mountains of Jamaica and Hispaniola. Shrub.
3. Emetica. Mountains of Arabia Felix. Shr.
4. Glabra. Woody mts. of the Havannah. Shr.
5. Pallida. Mountains of Hispaniola. Shrub.
6. Moschata. Old woods N. of Jamaica. Shr.
7. Spectabilis. New Zealand. Shrub.
8. Alliacea. Island of Namoka. Shrub.
9. Heterophylla. Madagascar. Shrub.
10. Trifoliata. South America. Shrub.
11. [illegible]. Java. Shrub.
12. [illegible]. East Indies. Shrub.
13. Capensis. (Ekebergia Capensis of Willd.)

[illegible]. TURRÆA. Cal. 5-dent. Pet. 5. Nect. dentatum cylindricum ore inter dentes antheras gerens. Caps. [illegible]. Sem. 2.
1. [illegible]. East Indies. Shrub.
2. [illegible]. Island of Haina. Shrub.
3. [illegible]. Madagascar. Shrub.
4. [illegible]. Madagascar. Shrub.
5. [illegible]. Madagascar. Shrub.

84[illegible]. MELIA. Cal. 5-dent. Pet. 5. Nect. cylindraceum dentatum fauce, antheras gerens. Drupa [illegible].
1. Azedarach. Syria and Ceylon. Shrub.
2. Sempervirens. Hedges of Jamaica. Shrub
3. Composita. East Indies. Shrub.
4. Azadirachta. India. Shrub.

842. SANDORICUM. Cal. 5-dent. Pet. 5. Nect. cylindraceum truncatum ore antheras gerens. Drupa [illegible] 5 fœta.
1. Indicum. Philippines and Moluccas. Shrub.

84[illegible]. SWIETENIA. Cal. 5 fid. Pet. 5. Nect. cylindraceum ore antheras gerens. Caps. 5-loc. lignosa, [illegible]hiscens. Sem. imbricata, alata.
1. Mahagoni. South America. Shrub.
2. Febrifuga. Mountains East Indies. Shrub.
3. Chloroxylon. Mountains East Indies. Shrub.
4. Senegalensis. Senegal. Shrub. (Desrouss. [illegible] Bot. 670.)

8[illegible]. GUAIACUM. Cal. 5-fid. inæqualis. Pet. 5, calyci inserta. Caps. angulata, 3 seu 5-loc.
1. Dubium. Island of Tongataboo. Shrub.

2. *Officinale.* Hispaniola and Jamaica. *Shrub.*
3. *Sanctum.* Porto Rico. *Shrub.*
* 4. *Verticale.* New Spain. (Ortega, *Dec.* 93.)

827. RUTA. *Cal.* 5-part. *Pet.* concava. *Recept.* punctis melliferis 10 cinctum. *Caps.* lobata.
1. *Graveolens.* South of Europe, Alexandria, Barbary, and Switzerland. *Shrub.*
2. *Montana.* Hills of Switzerland, Spain, and Portugal. *Shrub.*
3. *Chalepensis.* Arabia. *Shrub.*
4. *Pinnata.* Canaries on the rocks at Puerto de la Orotava. *Shrub.*
5. *Patavina.* Near Padua. *Shrub.*
6. *Linifolia.* Spain. *Peren.*
7. *Fruticulosa,* or *Villosa.* Media, and near Damascus. *Shrub.*
* 8. *Angustifolia.* Montpellier. (*Persoon.*)
* 9. *Tuberculata.* Egypt. *Shrub.* } *Herbarium*
* 10. *Rosmarinifolia.* Spain. *Peren.* } of Jussieu.

848. TRIBULUS. *Cal.* 5-part. *Pet.* 5 patentia. *Styl.* 0. *Caps.* 5, gibbæ, spinosæ, polyspermæ.
1. *Maximus.* Dry parts of Jamaica. *Ann.*
2. *Lanuginosus.* Ceylon.
3. *Terrestris.* South of Europe. *Ann.*
4. *Cistoides.* Warm parts of America. *Peren.*

847. FAGONIA. *Cal.* 5-phyll. *Pet.* 5 cordata. *Caps.* 5-loc. 10-valv.: loculis 1-spermis.
1. *Cretica.* Candia. *Ann.*
2. *Hispanica.* Spain. *Bien.*
3. *Arabica.* Arabia.
4. *Indica.* Persia.

846. ZYGOPHYLLUM. *Cal.* 5-phyll. *Pet.* 5. *Nect.* 10-phyll. germen tegens staminiferum. *Caps.* 5-loc.
1. *Simplex.* Arabia.
2. *Cordifolium.* Cape of Good Hope. *Shrub.*
3. *Fabago.* Syria, Barbary, and Siberia. *Per.*
4. *Fœtidum.* Cape of Good Hope. *Shrub.*
5. *Maculatum.* Cape of Good Hope. *Shrub.*
6. *Coccineum.* Africa and Siberia.
7. *Album.* Egypt and the Canaries. *Shrub.*
8. *Morgsana.* 10. *Sessilifolium.*
9. *Microphyllum.* 11. *Spinosum.*
12. *Æstuans.* Surinam.
13. *Lanatum.* Sierra Leone.
14. *Arboreum.* Warm parts of America. *Shrub.*
* 15. *Retrofractum.* * 16. *Capense.*
* 17. *Prostratum.*

Sp. 8—11, 15—17 shrubby, and from the Cape.

850. ZWINGERA, or SIMABA of Persoon. *Cal.* 5-part. *Pet.* 5. *Fil.* basi dilatata pilosa. *Caps.* 5, coriaceæ 1-spermæ receptaculo carnoso insertæ.
1. *Amara.* Woods of Guiana. *Shrub.*

849. QUASSIA. *Cal.* 5-phyll. *Pet.* 5. *Nect.* 5-phyll. *Drupæ* 5, distantes bivalves monospermæ receptaculo carnoso insertæ.
1. *Amara.* Surinam. *Shrub.*
2. *Simaruba.* Cayenne, Guiana, Carolina, St Domingo, and Jamaica. *Shrub.*
3. *Excelsa.* Jamaica and the Caribbees. *Shrub.*

861. CERATOPETALUM. *Cal.* 5-part. staminiferus persistens. *Pet.* 5-pinnatifida. *Anth.* calcaratæ. *Caps.* in fundo calycis tecta 2-loc.
1. *Gummiferum.* New Holland. *Shrub.*

852. THRYALLIS. *Cal.* 5-part. *Pet.* 5. *Caps.* 3-cocca.
1. *Brasiliensis.* Brasil. *Shrub.*

835. EKEBERGIA. *Cal.* 4-part. *Cor.* 4-pet. *Nect.* annulus germen cingens. *Bacca* 5-sperma.
1. *Capensis.* Cape of Good Hope. *Shrub.*

Given under TRICHILIA by Persoon.

857. SCHOUSBŒA, or CACOUCIA of Persoon. *Cal.* campan. 5-fid. corollifer. *Pet.* 5. *Bacca* 5-angularis 1-sperma. *Sem.* arillatum.
1. *Coccinea.* On the banks of the river Sinemara in Guiana. *Shrub.*

826. PETALOMA. *Cal.* urceolatus 5-dent. *Pet.* 5, calyci insertæ. *Stam.* margini calycis insidentia. *Bacca* 1-loc.
1. *Myrtilloides.* Low woods of Jamaica and Hispaniola. *Shrub.*
2. *Muriri.* Woods of Guiana. *Shrub.*

853. LIMONIA. *Cal.* 5-part. *Pet.* 5. *Bacca* 3-loc. *Sem.* solitaria.
1. *Monophylla.* East Indies.
2. *Trifoliata.* East Indies.
3. *Acidissima.* India.
4. *Lucida.* Island Mallicollo.
5. *Mauritiana.* Mauritius.
6. *Pentaphylla.* East Indies.
7. *Madagascarensis.* Madagascar.
8. *Minuta.* Friendly Islands.
* 9. *Crenulata.* Coast of Coromandel. } *Roxb.* ii.
* 10. *Arborea.* Coromandel. } p. 59.

Sp. 1—8 shrubby.

844. COOKIA. *Cal.* 5-fid. inferus. *Cor.* 5-pet. æqualis, infera. *Pomum* 5-loc.; loculis 1-spermis.
1. *Punctata.* South of China. *Shrub.*

858. HEISTERIA. *Cal.* 5-fid. *Pet.* 5. *Drupa* calyce colorato maximo.
1. *Coccinea.* Thick woods of Martinique at torrents. *Shrub.*

859. QUISQUALIS. *Cal.* 5-fid. filiformis. *Pet.* 5. *Drupa* 5-angulari.
1. *Indica.* India. *Shrub.*

‡ 854. MONOTROPA. *Cal.* 0. *Pet.* 10; horum 5 exteriora basi excavato-mellifera. *Caps.* 5-valv. *Quinta* pars numeri quibusdam excluditur.
1. *Hypopithys.* Britain, Sweden, Germany, and Canada. *Peren.*
2. *Uniflora.* Maryland, Virginia, and Canada. *Peren.*
* 3. *Lanuginosa.* Woods of Carolina. } Mich. *Flor. Amer.* i.
* 4. *Morisoni.* Woods of Carolina. } p. 266.

872. CLETHRA. *Cal.* 5-part. *Pet.* 5. *Stig.* 3-fid. *Caps.* 3-loc. 3-valv.
1. *Alnifolia.* Carolina, Virginia, and Pennsylvania. *Shrub.*
2. *Paniculata.* North America. *Shrub.*
3. *Arborea.* Madeira. *Shrub.*
4. *Tinifolia.* Mts. in the S. of Jamaica. *Shrub.*
* 5. *Scabra.* America. (*Herbar.* of Jussieu.)
* 6. *Incana.* (Lamarck, *Encyc.* i. p. 46.)
* 7. *Acuminata.* Mountains of Carolina. (*Mich.* i. 260.)

‡ 873. PYROLA. *Cal.* 5-part. *Pet.* 5. *Caps.* 5-loc. angulis dehiscens.
1. *Rotundifolia.* Britain and other parts of Europe, Virginia, and Brasil. *Peren.*
2. *Minor.* Britain and other parts of Europe. *Peren.*
3. *Secunda.* Britain and other parts of Europe. *Shrub.*

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4. *Umbellata.* Woods in Europe, Asia, and North America. *Shrub.*
5. *Maculata.* Woods in N. America. *Shrub.*
6. *Uniflora.* Britain and other parts of Europe. *Peren.*
*7. *Azarifolia.* N. America. (*Mich.* i. 251.)

865. LEDUM. *Cal.* 5-fid. *Cor.* plana, 5-part. *Caps.* 5-locul. basi dehiscens.
1. *Palustre.* Bogs in the North of Europe, and in Hudson's Bay.
2. *Latifolium.* Greenland, Labrador, Hudson's Bay, and Nova Scotia. *Shrub.*
3. *Buxifolium,* or *Thymifolium.* Carolina. *Shr.*

Persoon gives Sp. 3 under the subgenus LEIOPHYLLUM. *Caps.* apice dehiscens. *Fol.* utrinque glabra. *Synopsis,* i. p. 477.

855. DIONAEA. *Cal.* 5-phyll. *Pet.* 5. *Caps.* 1-loc. gibba, polysperma.
1. *Muscipula.* Boggy parts of Carolina. *Per.*

833. MURRAYA. *Cal.* 5-part. *Cor.* 5-pet. campan. *Nect.* germen cingens. *Bacca* 1-sperma.
1. *Exotica.* East Indies. *Shrub.*

834. BERGERA. *Cal.* 5-part. *Cor.* 5-pet. *Stig.* turbinatum. *Bacca* 2-sperma.
1. *Koenigii.* East Indies. *Shrub.*

862. MELASTOMA. *Cal.* 5-fid. campan. *Pet.* 5, calyci inserta. *Bacca* 5-loc. calyce obvoluta.
1. *Calyptrata.* Island of Monserrat.
2. *Crocea.* Peru.
3. *Patens.* Higher mountains of Jamaica.
4. *Crenata.* South America.
5. *Rigida.* Blue mountains of Jamaica.
6. *Decussata,* or *Racemosa.* Cayenne, and Guiana.
7. *Montana.* High mts. in the S. of Jamaica.
8. *Procera.* High mountains of Jamaica.
9. *Adscendens.* Mountains of Jamaica.
10. *Aspera.* India.
11. *Ledifolia.* Peru.
12. *Strigosa.* New Granada.
13. *Holosericea.* Brasil and Surinam.
14. *Velutina.* Jamaica and Brasil.
15. *Sessilifolia.* Jamaica.
16. *Ramiflora.* Boggy places in Jamaica.
17. *Glabra.* Society Islands.
18. *Chrysophylla.* Madagascar.
19. *Quadrangularis.* High mts. of Jamaica.
20. *Trinervia.* Mountains of Jamaica.

Sp. 1—20 shrubby.

21. *Repens.* China. *Peren.*
22. *Grossularioides.* Surinam.
23. *Parviflora.* Cayenne and Guiana.
24. *Succosa.* Woody parts of Guiana and Cayenne.
25. *Arborescens.* Woods of Guiana.
26. *Longifolia.* Guiana, banks of the Galibia.
27. *Prasina.* Jamaica, Hispaniola, Cayenne, and Guiana.

Sp. 23—27 shrubby.

28. *Agrestis.* At rivers and in old walls of Cayenne. *Peren.*
29. *Scandens.* Woods of Guiana.
30. *Alata.* Cayenne and Guiana.
31. *Flavescens.* Woods of Guiana.
32. *Hirta.* South America.
33. *Spicata.* Meadows of Guiana.
34. *Acinodendron.* Warm parts of America.
35. *Cymosa.* South America.
36. *Grandiflora.* Meadows of Cayenne and Guiana.
37. *Elegans.* Old walls of Cayenne.
38. *Rufescens.* Plains of Guiana.
39. *Rubra.* Banks of rivers in Guiana.
40. *Majeta.* Woods of Guiana.
41. *Heterophylla.* Peru.
42. *Physiphora.* Cayenne and Guiana.
43. *Purpurea.* Beside rivers in Guiana.
44. *Argentea.* Musquito shore America.
45. *Elata.* Mountains of Jamaica, and other West India islands.
46. *Impetiolaris.* West Indies.
47. *Fragilis.* Brasil, Mexico, and Surinam.
48. *Coriacea.* Island of Guadaloupe.
49. *Grossa.* New Granada.
50. *Malabathrica.* India.
51. *Strigillosa.* Jamaica.
52. *Tamonea.* Jamaica, the Caribbees, Cayenne, and Guiana.
53. *Albicans.* Jamaica and Rio de Janeiro.
54. *Capitata.* West Indies.
55. *Splendens.* Woody mountains of Jamaica.
56. *Lævigata.* America.
57. *Crispata.* Amboyna.
58. *Hirsuta.*
59. *Microphylla.*
60. *Micrantha.*
61. *Capillaris.*
62. *Rubens.*
63. *Glabrata.*
64. *Glandulosa.*
65. *Hirtella.*

Sp. 58—65 from Jamaica.

66. *Triflora.* Caribbees.
67. *Octandra.* Ceylon.
68. *Divaricata.* East Indies.
69. *Tetrandra.* Blue Mountains in Jamaica.
70. *Fascicularis.* Mts. in the interior of Jamaica.
71. *Angustifolia.* Jamaica and the Island of S John's.
72. *Purpurascens.* High mountains of Jamaica
73. *Alpina.* Island of Guadaloupe.
74. *Verticillata.* Caribbees.
75. *Acuminata,* or *cinnamomifolia.* Montserrat.
76. *Lateriflora.* Tops of mts. in Montserrat.
77. *Elæagnoides.* Island of St John's America.
78. *Scabrosa.* Cold mountains of Jamaica.
79. *Virgata.* Mountains of Jamaica.
80. *Umbrosa.* St Christopher's and the Caribb Isles.
81. *Hispida.* Mountains of Jamaica.
82. *Sessiliflora.* South America.
83. *Pilosa.* Mountains of Jamaica.
84. *Discolor.* Warm parts of America.
85. *Coccinea.* Island of Montserrat.

Sp. 29—85 shrubby.

*86. *Aromatica.* Guiana. (Vahl, *Eclog.*)
*87. *Involucrata.* St Domingo.
*88. *Diffusa.* Cayenne.
*89. *Punctata.* St Domingo.
*90. *Cornifolia.* Martinique.
*91. *Myricoides.* Antilles.
*92. *Trichotoma.*
*93. *Staminea.* Brasil.
*94. *Acuminata.* Guadaloupe.
*95. *Marginata.* Brasil.
*96. *Multiflora.* St Domingo.
*97. *Amygdalina.* St Domingo.
*98. *Lanceolata.* St Domingo.
*99. *Mucronata.* Cayenne.
*100. *Favosa.* St Domingo.

*101. *Lima.* St Domingo.
*102. *Papillosa.* Peru.
*103. *Latifolia.* Antilles.
*104. *Dichotoma.* Brasil.
*105. *Laxa.* Peru.
*106. *Nivea.* St Domingo.
*107. *Pyramidalis.* Antilles.
*108. *Nicotianæfolia.* St Domingo.
*109. *Pauciflora.* Brasil.
*110. *Ferruginea.* St Domingo.
*111. *Granulosa.* Brasil.
*112. *Clavata.* Brasil.
*113. *Nodosa.* Antilles.
*114. *Articulata.* Cayenne.

For an account of these new species, see Lamarck, *Encyc. Method.* iv. p. 35, &c.

863. MERIANIA. *Cal.* 5-fid. campan. *Pet.* 5, calyci inserta. *Stam.* declinata. *Caps.* 5-loc. polysperma.
1. *Leucantha.* Highest mts. of Jamaica. *Shrub.*
2. *Purpurea.* Top of the mts. of Jamaica. *Shrub.*

856. JUSSIEUA. *Cal.* 4 seu 5-part. superus. *Pet.* 4 seu 5. *Caps.* 4 seu 5-loc. oblonga, angulis dehiscens. *Sem.* numerosa, minuta.
1. *Repens.* India. *Peren.*
2. *Tenella.* Java.
3. *Linearis.* Guinea.
4. *Linifolia.* South America.
5. *Peruviana.* Lima.
6. *Hirta.* Warm parts of America. *Shrub.*
7. *Pubescens.* America.
8. *Octovalvis.* Caribbee Islands. *Ann.*
9. *Suffruticosa* or *villosa.* India.
10. *Acuminata.* South of Jamaica. *Ann.*
11. *Inclinata.* Boggy parts of Surinam. *Ann.*
12. *Erecta.* America and Virginia. *Ann.*
*13. *Sedoides.* Stagnant waters of N. Granada, near the city of Monpox and Ibague. (Humboldt, *Plant. Æquinoct.*)
*14. *Natans.* Stagnant waters of N. Granada, near the city of Monpox and Ibague. (Humboldt, *Plant. Æquinoct.*)
*15. *Grandiflora.* Marshes of Georgia. *Shrub.* (*Michaux.*)
*16. *Angustifolia.* Java and the Moluccas. }
*17. *Carophyllæa.* India. } Lamarck, *Enc.* iii. p. 331.

SECT. III. *Flowers Monopetalous. Equal.*

822. PANZERA or EPERUA, *Persoon.* *Cal.* 1-phyll. limbo 4-part. *Pet.* 1, subrotundum laterale basi convolutum. *Fil.* basi incrassata barbata, 5 sterilia. *Legum.*
1. *Falcata.* Woods and banks of rivers of Guiana.

825. NICANDRA or POTALIA. *Cal.* turbinatus 4-part. *Cor.* 1-pet. profunde 10-fida. *Fil.* annulo nectarifero inserta. *Bacca* 6-sulcata 3-loc. polysperma.
1. *Amara.* Woods of Guiana. *Shrub.*

This genus is different from the genus NICANDRA, given among the New Genera in Class V.

823. CODON. *Cal.* 10-part. *Cor.* campan. 10-fida. *Caps.* polysperma.
1. *Royeni.* Cape of Good Hope. *Ann.*

875. INOCARPUS. *Cal.* 2-fidus. *Cor.* infundibulif. *Stam.* duplici serie. *Drupa* 1-sperma.
1. *Edulis.* Java, Celebes, Amboyna, Banda, N. Hebrides, Friendly and Society Islands. *Shr.*

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838. STRIGILIA. *Cal.* 5-dent. *Cor.* profunde 5-part. *Nect.* profunde 10-part. laciniis lanceolatis. *Anth.* sessilis in nectarii laciniis. *Fructus* 6-loc.?
1. *Racemosa,* or *ferruginea.* Peru. *Shrub.*
*2. *Cordata.* Groves of Peru. }
*3. *Ovata.* Groves of Peru. } See *Flor. Per.* p. 99.
*4. *Oblonga.* Groves of Peru. }

This genus is the FOVEOLARIA of the *Fl. Per.* and the TREMANTHUS of Persoon, who gives the Sp. 2—4, with the following generic character: "*Cal.* campan. inferus. *Pet.* revoluta, punctata. *Nect.* tubulosum. *Anth.* post dehiscentiam punctis setaceo-stellatis asperæ. *Drupa* obovata."

‡868. ANDROMEDA. *Cal.* 5-part. *Cor.* ovata: ore 5-fido. *Caps.* 5-loc. valvulis dessepimento contrariis.
1. *Tetragona.* Mountains of Lapland and Siberia.
2. *Ericoides.* Kamschatka and mts. of Dauria.
3. *Hypnoides.* Mts. of Lapland and Siberia.
4. *Lycopodiodes.* Kamschatka and I. of Bhering.
5. *Empetrifolia.* Straits of Magellan.
6. *Myrsinites.* Straits of Magellan.
7. *Mariana.* Virginia.
8. *Ferruginea.* North America.
9. *Fasciculata.* Mountains South of Jamaica.
10. *Jamaicensis.* Tops of the mts. of Jamaica.
11. *Octandra.* Highest mts. South of Jamaica.
12. *Pulverulenta.* Florida.
13. *Polifolia.* Britain and shores of Labrador.
14. *Salicifolia.* Mauritius.
15. *Buxifolia.* Bourbon.
16. *Japonica.* Japan.
17. *Paniculata.* Virginia.
18. *Arborea.* Virginia and Carolina.
19. *Racemosa.* Pennsylvania and Maryland.
20. *Catesbæi.* Virginia and Carolina.
21. *Axillaris.* Carolina.
22. *Coriacea.* North America.
23. *Acuminata.* North America.
24. *Rupestris.* New Zealand.
25. *Anastomosans.* New Granada.
26. *Calyculata.* Europe, Russia, North America, and Siberia.

Sp. 1—26 shrubby.

*27. *Prostrata.* South America. (*Cavanilles.*)
*28. *Rhomboidalis.* Carolina and Flor. (*Duham.*)
*29. *Pyrifolia.* Carolina and Flor. *Shr.* (*Aubert.*)
*30. *Ilicifolia.* Peru. *Shr.* }
*31. *Rubiginosa.* Isle of St Thomas. *Shrub.* } Persoon, *Synop.* i. p. 481.
*32. *Marginata.* Carolina and Florida. *Shrub.* (*Duham.*)
*33. *Bracteata.* Mt. Chimborazo. (*Cavan.*)
*34. *Eriophylla.* Brasil. (*Vandelli.*)

867. RHODODENDRON. *Cal.* 5-part. *Cor.* subinfundibulif. *Stam.* declinata. *Caps.* 5-loc.
1. *Ferrugineum.* Mountains of Switzerland, Pyrenees, and Siberia. *Shrub.*
2. *Dauricum.* Dauria. *Shrub.*
3. *Kamchaticum.* Kamschatka and Bhering's Island. *Shrub.*
4. *Hirsutum.* Switzerl. Austria, and Steria. *Shr.*
5. *Chamæcistus.* Mount Baldo, near Salzburg, Austria, and Carniola. *Shrub.*
6. *Caucausicum.* Snowy regions of Mount Caucasus. *Shrub.*
7. *Chrysanthum.* Mts. of Siberia at Lake Baikal, in Kamschatka, and Bhering's Island. *Shrub.*
8. *Ponticum.* In the East and Gibraltar. *Shr.*

9. *Maximum*. Virginia. *Shrub*.
10. *Punctatum*, or *minus*. N. America. *Shrub*.
*11. *Catabiense*. Head of the river Catawba in North Carolina. (*Michaux*.)

864. KALMIA. *Cal.* 5-part. *Cor.* hypocraterif. limbo subtus 5-corni. *Caps.* 5-loc.
1. *Latifolia*. Maryland, Virginia, Pennsylvania. *Shrub*.
2. *Angustifolia*. Pennsylvania, and New York. *Shrub*.
3. *Glauca*. America. *Shrub*.
4. *Hirsuta*. South Carolina. *Shrub*.
* 5. *Cuneata*. Carolina. (*Michaux*.)

869. EPIGÆA. *Cal.* exterior 3-phyll.: interior 5-part. *Cor.* hypocraterif. *Caps.* 5-loc.
1. *Repens*. Virginia and Canada. *Shrub*.
2. *Cordifolia*. Guadaloupe and Cayenne. *Shr.*

870. GAULTHERIA. *Cal.* exterior 2-phyll.; inferior 5-fid. *Cor.* ovata. *Nect.* mucronibus 10. *Caps.* 5-loc. vestita calyce interiore baccata.
1. *Procumbens*. Sandy parts of Canada. *Shrub*.
2. *Antipoda*. New Zealand. *Shrub*.
* 3. *Erecta*. Peru. *Shrub*. (*Ventenat*.)
* 4. *Buxifolia*. Caraccas. } See Willd. *N.*
* 5. *Scabra*. Caraccas. *Shrub*. } *Act. Soc.*
* 6. *Odorata*. Caraccas. *Shrub*. } *Berol.* 4.

‡ 871. ARBUTUS. *Cal.* 5-part. *Cor.* ovata: ore basi pellucida. *Bacca* 5-loc.
1. *Unedo*. Britain and other parts of Europe, and in the East. *Shrub*.
2. *Laucifolia*. North America. *Shrub*.
3. *Andrachne*. In the East. *Shrub*.
4. *Ferruginea*. America. *Shrub*.
5. *Acadiensis*. Acadia. *Shrub*.
6. *Alpina*. Mountains of Scotland, Lapland, Switzerland, and Siberia. *Shrub*.
7. *Uva ursi*. England and other parts of Europe and Canada. *Shrub*.
8. *Mucronata*. Terra del Fuego. *Shrub*.
9. *Microphylla*. Terra del Fuego. *Shrub*.
10. *Pumila*. Terra del Fuego. *Shrub*.
* 11. *Integrifolia*. Mount Ida in Candia. *Shrub*. (Lam. *Ill.* t. 366.)
* 12. *Phylliræfolia*. Peru. *Shr.* (*Herb.* of Jussieu.)

874. STYRAX. *Cal.* inferus. *Cor.* infundibulif. *Drupa* 2-sperma.
1. *Officinale*. Syria, Judea, Italy. *Shrub*.
2. *Grandifolium*. Southern pts. of Carolina. *Shr.*
3. *Benzoin*. Sumatra. *Shrub*.
4. *Lævigatum*. South Carolina. *Shrub*.
* 5. *Grandifolium*. S. Carolina. *Shr.* (*Hort. Kew.*)

SECT. IV. *Flowers without Petals, or Incomplete.*

860. DAIS. *Involucrum* 4-phyll. *Cor.* 4 seu 3-fida. *Bacca* 1-sperma.
1. *Cotinifolia*. Cape of Good Hope. *Shrub*.
2. *Disperma*. Island of Tongataboo. *Shrub*.
3. *Octandra*. India. *Shrub*.
*4. *Laurifolia*. India. *Shrub*.

This genus seems to comprehend some of the species of GNIDIA.

878. AQUILARIA. *Cal.* campan. 5-fid. *Cor.* 0. *Nectar.* campan. 5-fidum interno staminiferum. *Caps.* 2-loc. 2-valv. lignosa. *Sem.* solitaria.
1. *Ovata*. Mountains of Malacca. *Shrub*.

879. AUGEA. *Cal.* 5-part. *Cor.* 0. *Nect.* 10-dent. *Caps.* 10-loc.
1. *Capensis*. Cape of Good Hope.

876. SAMYDA. *Cal.* 5-part. coloratus. *Cor.* 0. *Nect.* campan. staminiferum. *Caps.* intus baccata, 4-valv. 1-loc. *Sem.* nidulantia.
1. *Nitida*. America. *Shrub*.
2. *Macrophylla*. East Indies. *Shrub*.
3. *Multiflora*. Dominica. *Shrub*.
4. *Villosa*. Mountains of Jamaica. *Shrub*.
5. *Glabrata*. Highest mts. S. of Jamaica. *Shr.*
6. *Spinescens*. Hispaniola. *Shrub*.
7. *Pubescens*. America. *Shrub*.
8. *Serrulata*. America. *Shrub*.
9. *Polyandra*. New Caledonia. *Shrub*.

877. CASEARIA. *Cal.* 5-phyll. *Cor.* 0. *Nect.* 4-5-phyll. cum staminibus alternans. *Caps.* intus baccata 3-valv. 1-loc. *Sem.* nidulantia.
1. *Spinosa*. Mts. of St Domingo.
2. *Nitida*. Carthagena.
3. *Ramiflora*. Island of Santa Cruz, Guiana, and Cayenne.
4. *Hirta*. Pastures of Jamaica.
5. *Parviflora*. Warm parts of America.
6. *Parvifolia*. Mountains of Martinique.
7. *Sylvestris*. Mountains of the West Indies, particularly in Jamaica.
8. *Macrophylla*. Cayenne.
9. *Serrulata*. Island of Nevis West Indies.
10. *Elliptica*. East Indies.
11. *Ovata*, or *Anavinga*. East Indies.
12. *Hirsuta*. Mts. of Jamaica and Hispaniola.

Sp. 1—4 have only 8 stamina. Sp. 1—12 shrubby.

881. BUCIDA. *Cal.* 5-dent. superus. *Cor.* 0. *Bacca* 1-sperma.
1. *Buceras*. Jamaica. *Peren.*
2. *Capitata*. Montserrat. *Shrub*.

821. CRUDIA. *Cal.* 1-phyllus, limbo 4-fido. *Cor.* 0. *Fil.* basi dilatata. *Samara* subdisperma orbiculata.
1. *Spicata*. Woods of Guiana. *Shrub*.
2. *Aromatica*. Woods of Guiana. *Shrub*.

880. COPAIFERA. *Cal.* 0. *Pet.* 4. *Legumen* ovatum. *Sem.* 1. arillo ovato.
1. *Officinalis*. Brazil and the Antilles. *Shrub*.

ORDER II. DIGYNIA.

‡ 890. SCLERANTHUS. *Cal.* 1-phyllus. *Cor.* 0. *Sem.* 2, calyce inclusa.
1. *Annuus*. Engl. and other pts. of Eur. *Ann.*
2. *Perennis*. Engl. and other pts. of Eur. *Per.*
3. *Polycarpus*. Montpellier and Italy. *Ann.*

885. TRIANTHEMA. *Cal.* sub apice mucronatus. *Cor.* 0. *Stam.* 5. seu 10. *Germ.* retusum. *Caps.* circumscissa.
1. *Monogyna*. Jamaica, Curaçoa. *Ann.*
2. *Chrystallina*. Arabia and East Indies. *Shr.*
3. *Pentandra*. Arabia. *Ann.*
4. *Fruticosa*. Egypt and Tunis. *Shrub*.
5. *Humifusa*. Cape of Good Hope. *Shrub*.
6. *Anceps*. Cape of Good Hope. *Shrub*.
7. *Decandra*. India. *Ann.*

‡ 886. CHRYSOSPLENIUM. *Cal.* 4 seu 5-fid. coloratus. *Cor.* 0. *Caps.* birostris. 1. loc. polysperma.

11. *Muralis.* Germany, Sweden, Switzerl. *Bien.*
12. *Rigida.* Montpellier. *Peren.*
13. *Saxifraga.* Austria, Switzerl. France. *Per.*
* 14. *Compressa.* Fields of Barbary. (*Desfont.*)

‡ 892. Saponaria. *Cal.* 1-phyll. nudus. *Pet.* 5, unguiculata. *Caps.* oblonga, 1-loc.

1. *Officinalis.* Engl. and other pts. of Eur. *Per.*
2. *Vaccaria.* France, Germany, Switzerland, and in the East. *Ann.*
3. *Cretica.* Dry parts of Candia.
4. *Porrigens.* In the East. *Ann.*
5. *Illyrica.* Dalmatia.
6. *Ocymoides.* Switzerland, Italy, and Montpellier. *Peren.*
7. *Orientalis.* In the East, and Carniola. *Ann.*
8. *Lutea.* Switzerland, Savoy, Mt. Cenis. *Shr.*
9. *Bellidifolia.* Mountains of Italy. *Peren.*

‡ 893. Dianthus. *Cal.* cylindricus, 1-phyll.: basi squamis 4. *Pet.* 5, unguiculata. *Caps.* cylindrica, 1-locularis.

1. *Barbatus.* Carniola and Germany. *Peren.*
2. *Carthusianorum.* Germany, Italy, Siberia, Switzerland, and Carniola. *Peren.*
3. *Atrorubens.* Dry places of Italy. *Peren.*
4. *Ferrugineus.* Italy and Tauria. *Bien.*
5. *Armeria.* Engl. and other parts of Eur. *Ann.*
6. *Japonicus.* Japan. *Shrub.*
7. *Prolifer.* Engl. and other parts of Eur. *Ann.*
8. *Diminutus.* Germany and Switzerland. *Ann.*
9. *Caryophyllus.* England and Italy. *Peren.*
10. *Sylvestris.* Switzerland, Carniola, and Carinthia. *Peren.*
11. *Pomeridianus.* Constantinople, Palestine. *Per.*
12. *Deltoides.* Engl. and other parts of Eur. *Per.*
13. *Albens.* Cape of Good Hope. *Peren.*
14. *Crenatus.* Cape of Good Hope. *Peren.*
15. *Chinensis.* China. *Peren.*
16. *Monspeliacus.* Montpellier and Verona. *Per.*
17. *Libanotus.* High Mts. of Lebanon. *Peren.*
18. *Plumarius.* Europe and Canada. *Peren.*
19. *Crinitus.* In the East.
20. *Superbus.* France, Germ. Denmark. *Bien.*
21. *Attenuatus.* Coasts south of France. *Peren.*
22. *Pungens.* Coasts of Spain. *Peren.*
23. *Virgineus.* Montpellier, Austria, and Siberia. *Peren.*
24. *Arenarius.* Europe. *Peren.*
25. *Repens.* Siberia. *Peren.*
26. *Cæsius.* England and Switzerland. *Peren.*
27. *Cespitosus.* Cape of Good Hope. *Peren.*
28. *Scaber.* Cape of Good Hope.
29. *Alpinus.* Styria, Austria, and Siberia. *Peren.*
30. *Pumilus.* Arabia Felix. *Peren.*
31. *Arboreus.* Candia and Greece. *Shrub.*
32. *Juniperinus*, or *Fruticosus.* Candia. *Shrub.*
* 33. *Spinosus.* Persia. (Desfont. *Ann. Mus.* i. p. 198.)
* 34. *Procumbens.* In the East. (Venten. *Fl. Atl.*)
* 35. *Furcatus.* Near Tenda. (Balbis. *Mem. Ac. Taur.*)
* 36. *Purpureus.* (Lamarck, *Ill.* t. 376.)
* 37. *Ochroleucus.* In the East. (*Persoon.*)
* 38. *Glaucus.* (A variety of *Deltoides.* *Smith.*)
* 39. *Tener.* Near Tenda. (Balbis. *Mem. Ac. Taur.*)
* 40. *Serrulatus.* Sands of Tunis. (*Desfont.*)
* 41. *Pulchellus.* (*Persoon.*)

Order III. Trigynia.

900. Brunnichia. *Cal.* ventricosus 5-fid. *Cor.* 0. *Caps.* 3-gona 1-loc. 1-sperma.

1. *Cirrhosa.* Bahama Islands.

This genus is given under *Octandria* by Persoon.

‡ 897. Arenaria. *Cal.* 5-phyll. patens. *Pet.* 5, integra. *Caps.* 1-loc. polysperma.

1. *Peploides.* Engl. and other parts of Eur. *Per.*
2. *Tetraquetra.* Pyrenees and Montpellier. *Per.*
3. *Biflora.* South of Europe. *Peren.*
4. *Lateriflora.* Siberia.
5. *Trinervia.* Engl. and other parts of Eur. *Ann.*
6. *Ciliata.* Rhætian Alps. *Peren.*
7. *Balearica.* Balearic Isles. *Peren.*
8. *Multicaulis.* Switzerland, Austria, and the Pyrenees. *Peren.*
9. *Serpyllifolia.* England and other parts of Europe. *Ann.*
10. *Procumbens.* Tunis and Egypt. *Peren.*
11. *Polygonoides.* Switzerl. and Carinthia. *Ann.*
12. *Triflora.* South of Europe. *Peren.*
13. *Montana.* South of France. *Peren.*
14. *Rubra.* Engl. and other parts of Eur. *Ann.*
15. *Media.* France and England. *Ann.*
16. *Bavarica.* Bavaria, Siberia, and Mt. Baldo. *Peren.*
17. *Gypsophiloides.* In the East. *Peren.*
18. *Cucubaloides.* Armenia. *Peren.*
19. *Dianthoides.* Armenia. *Peren.*
20. *Saxatilis.* Germany, Switzerland, France, and Siberia. *Peren.*
21. *Cæspitosa.* Germany. *Peren.*
22. *Verna.* Engl. and other parts of Eur. *Peren.*
23. *Hispida.* Mountains at Montpellier.
24. *Verticillata.* Armenia. *Shrub.*
25. *Juniperina.* Armenia. *Peren.*
26. *Tenuifolia.* England, Germany, Switzerland, France, and Italy. *Ann.*
27. *Laricifolia.* Switzerland, Geneva, Montpellier, and about Paris. *Peren.*
28. *Recurva.* Switzerland, Italy, Austria, and Moravia. *Peren.*
29. *Lanceolata*, or *Cherlerioides.* Piedm. *Peren.*
30. *Striata.* Austria and France. *Peren.*
31. *Filifolia.* Arabia. *Peren.*
32. *Fasciculata.* Montpellier, Austria, and Carniola. *Ann.*
33. *Austriaca.* Austria and Mts. of Italy. *Pe*
34. *Grandiflora.* South of France. *Peren.*
35. *Liniflora.* South of Europe. *Peren.*
36. *Gerardi.* Austria and France. *Peren.*
* 37. *Ruscifolia.* } Poiret, Encyc. vi. — 363
* 38. *Spathulata.* Wds. of Barbary. }
* 39. *Cerastoides.* Pyrenees. (*Mirbel.*)
* 40. *Villarsii.* Dauphiny. (*Villars.*)
* 41. *Calycina.* Barbary. (*Poiret.*)
* 42. *Obtusa.* Alps. (*Allioni.*)
* 43. *Glabra.* North Carolina. } Mich. *Fl.* [illegible]
* 44. *Stricta.* North America. }
* 45. *Scabra.* Alps. }
* 46. *Echinata.* Alps. } Poiret, *Encyc.*
* 47. *Sibirica.* Siberia. }
* 48. *Capillacea.* Piedmont. (*Allior.*)
* 49. *Patula.* Near Knoxville. (*Mich.*)
* 50. *Viscosa.* Near Romainville. (*Thuill.*)
* 51. *Heteromalla.* France. (*Thuill.*)
* 52. *Canadensis.* At river St Lawrence. ([illegible])

50. *Chloræfolia.* Armenia. *Peren.*

51. *Alpestris.* Mountains of Austria. *Peren.*

52. *Rupestris.* Sweden and Switzerland. *Bien.*

53. *Saxifraga.* France, Italy, and Carniola. *Peren.*

54. *Vallesia.* In the Vallais. *Peren.*

55. *Pumilio.* Italy, Moravia, and Carinthia. *Per.*

56. *Acaulis.* Britain, Lapland, Austria, Switzerland, and the Pyrenees. *Peren.*

*57. *Caspica.* Between Cuba and Shamachea. *Shrub.*

*58. *Royeni.* Beyond the Caspian Sea. *Bien.*

See Bieberstein, *Tableau*, &c.

*59. *Imbricata.* Near Mascar. *Ann.*

*60. *Hispida.* In Mount Atlas. *Ann.*

*61. *Tridentata.* Algiers and Spain. *Ann.*

*62. *Reticulata.* Algiers.

See Desfont. *Flor. Atlant.* p. 349. t. 98.

*63. *Picta.* Near Dax in France. (*Persoon.*)

*64. *Rugosa.* (*Herbar.* of Jussieu.)

*65. *Nicæensis.* Near Nice. (*Allioni.*)

*66. *Laciniata.* South America. (*Cavanilles.*)

*67. *Virginica.* Illinois.

*68. *Pennsylvanica.* Pennsylvania.

Mich. *Flor. Amer.* i. p. 278.

*69. *Bipartita.* Sbiba. *Ann.*

*70. *Ramosissima.* Coasts of Barbary. *Peren.*

*71. *Arenaria.* Coasts of Barbary. *Shrub.*

*72. *Arenarioides.* Barbary.

*73. *Cinerea.* Fields of Algiers.

*74. *Patula.* Fields of Barbary.

*75. *Pseudo-atocion.* Mount Atlas.

See Desfont. *Flor. Atlant.* i. p. 352. t. 100.

*76. *Campanula.* Piedmont. (*Allioni.*)

*77. *Repens.* Siberia, near Baikal.

*78. *Exscapa.* Lapland, Austria, Piedmont, and Switzerland. (*Allioni.*)

Under this genus Persoon includes Sp. 3, 5—16, and 18 of *Cucubalus.*

‡ 898. CHERLERIA. *Cal.* 5-phyll. *Nect.* 5, bifida, pectaloidea. *Anth.* alternæ, steriles. *Caps.* 3-loc. 3-valv. 3-sperma.

1. *Sedoides.* Scotland, Switzerl. Germany. *Per.*

901. GARIDELLA. *Cal.* 5-phyll. petaloideus. *Nect.* 5, bilabiata, bifida. *Caps.* 3, connexæ, polyspermæ.

1. *Nigellastrum.* Provençe. *Ann.*

906. ERYTHROXYLON. *Cal.* turbinatus. *Cor.* petalis basi squamula nectarifera emarginata. *Stam.* basi connexa. *Drupa* 1-loc.

1. *Areolatum.* Sandy coasts about Carthagena. *Shrub.*

2. *Hypericifolium.* Mauritius and Bourbon. *Shrub.*

3. *Buxifolium.* Madagascar. *Shrub.*

4. *Ferrugineum.* Madagascar. *Shrub.*

5. *Rufum.* South America. *Shrub.*

6. *Havanense.* Rocky coasts of Havannah. *Shr.*

7. *Coca.* Peru. *Shrub.*

8. *Sideroxyloides.* Island of Bourbon. *Shrub.*

9. *Squamatum.* Cayenne and Caribbees. *Shrub.*

10. *Macrophyllum.* Cayenne. *Shrub.*

11. *Laurifolium.* Mauritius. *Shrub.*

12. *Longifolium.* Madagascar. *Shrub.*

*13. *Monogynum.* India. (Roxb. *Cor.*)

902. MALPIGHIA. *Cal.* 5-phyll. basi extus poris binis melliferis. *Pet.* 5, subrotunda, unguiculata. *Fil.* basi cohærentia. *Drupa* 1-loc. 3-pyrena nucibus 1-spermis.

1. *Glabra.* Jamaica, Brasil, Surinam, and Curaçoa.

2. *Biflora.* Woods of America.

3. *Punicifolia.* South America.

4. *Faginea.* Grenada.

5. *Glandulosa.* Antilles and the Caraccas.

6. *Tuberculata.* Caraccas.

7. *Nitida.* Chalky parts of Jamaica.

8. *Armeniaca.* Peru, province of Chancay.

9. *Dubia.* Dominica.

10. *Urens.* Warm parts of America.

11. *Angustifolia.* South America.

12. *Canescens.* West Indies.

13. *Crassifolia.* Warm parts of America.

14. *Spicata.* Dominica.

15. *Altissima.* Woods of Guiana.

16. *Verbascifolia.* Warm parts of America.

17. *Lucida.* West Indies.

18. *Coriacea.* Mts. in the south of Jamaica.

19. *Aquifolia.* Warm parts of America.

20. *Coccifera.* Warm parts of America.

Sp. 1—20 shrubby.

*21. *Glauca.* Mexico.

*22. *Hirsuta.* Mexico.

*23. *Glandulosa.* Mexico.

Cavanilles, *Icones, &c.* v. p. 61.

Persoon ranks Sp. 21—23 under the subgenus GALPHIMIA. *Cal.* glandulis nullis. *Fil.* libera. *Stig.* simplicia. *Fruct.* 3-loc. (*Cavanilles.*)

903. BANISTERIA. *Cal.* 5-part. basi extus poris binis melliferis. *Pet.* subrotunda, unguiculata. *Fil.* basi cohærentia. *Samaræ* 3, 1-spermæ apice simpliciter alatæ.

1. *Angulosa.* Warm parts of America. *Shrub.*

2. *Palmata.* St Domingo. *Shrub.*

3. *Sagittata.* St Domingo. *Shrub.*

4. *Auriculata.* Brasil, near Rio Janeiro. *Shr.*

5. *Ciliata.* Brasil. *Shrub.*

6. *Emarginata.* America.

7. *Quapara.* Guiana. *Shrub.*

8. *Sinemariensis.* Guiana. *Shrub.*

9. *Purpurea.* South America. *Shrub.*

10. *Microphylla.* Carolina? *Shrub.*

11. *Chrysophylla.* Brasil and Caraccas. *Shrub.*

12. *Laurifolia.* Jamaica and Hispaniola.

13. *Cærulea.* Jamaica and Dominica. *Shrub.*

14. *Nitida.* Brasil. *Shrub.*

15. *Muricata.* Peru. *Shrub.*

16. *Leona.* Sierra Leone. *Shrub.*

17. *Sericea.* Brazil. *Shrub.*

18. *Ferruginea.* Brazil and Rio Janeiro. *Shrub.*

19. *Longifolia.* Caribbees and St Lucia. *Shrub.*

20. *Dichotoma.* Warm parts of America. *Shrub.*

21. *Ovata.* Dominica. *Shrub.*

22. *Fulgens.* America. *Shrub.*

23. *Heterophylla.* Jamaica, St Domingo, and Guadaloupe.

24. *Brachiata.* America.

*25. *Macrocarpa.* Martinique. (*Herbar.* of Jussieu.)

904. HIRÆA. *Cal.* 5-phyll. absque poris melliferis. *Pet.* subrotunda, unguiculata. *Fil.* basi cohærentia. *Samaræ* 3, 1-spermæ bialatæ seu ala circumdatæ.

1. *Reclinata.* Woods of Carthagena. *Shrub.*

2. *Odorata.* Guinea. *Shrub.*

8. *Pinnata.* Sierra Leone. *Shrub.*

Persoon seems to think that this genus should be joined with TRIOPTERIS.

905. TRIOPTERIS. *Cal.* 5-part. basi extus poris 2 melliferis. *Pet.* subrotunda unguiculata. *Fil.* basi cohaerentia. *Samarae* 3, 1-spermae 3 seu 4-alatae.

1. *Jamaicensis.* Hedges of Jamaica and Hispaniola. *Shrub.*
2. *Indica.* East Indies. *Shrub.*
3. *Ovata.* Dominica. *Shrub.*
4. *Rigida.* Hills of Hispaniola. *Shrub.*
5. *Acutifolia.* Cayenne. *Shrub.*
6. *Acuminata.* Cayenne. *Shrub.*
7. *Buxifolia.* Antilles. *Shrub.*
8. *Citrifolia.* Woody mountains Jamaica. *Shr.*

See the new genus TETRAPTERIS.

PENTAGYNIA.

911. CNESTIS. *Cal.* 5-part. *Pet.* 5. *Caps.* 5, bivalvis 1-spermae.

1. *Glabra.* Mauritius and Bourbon. *Shrub.*
2. *Polyphylla.* Madagascar. *Shrub.*
3. *Corniculata.* Sierra Leone. *Shrub.*
4. *Trifolia.* Sierra Leone. *Shrub.*

912. COTYLEDON. *Cal.* 5-fid. *Cor.* 1-pet. *Squamae* nectariferae 5, at basin germinis. *Caps.* 5.

1. *Orbiculata.*	7. *Teretifolia.*
2. *Paniculata.*	8. *Cacalioides.*
3. *Fascicularis.*	9. *Reticulata.*
4. *Cuneata.*	10. *Papillaris.*
5. *Spuria.*	11. *Mamillaris.*
6. *Purpurea.*	

Sp. 1—11 shrubby, and from the Cape.

12. *Hemisphaerica.* Ethiopia. *Shrub.*
13. *Triflora.* Cape of Good Hope.
14. *Coccinea.* *Shrub.*
15. *Malacophyllum.* Mts. of Dauria. *Ann.*
16. *Serrata.* Candia and Siberia.
17. *Umbilicus.* England, Portugal, Spain. *Per.*
18. *Lutea.* England, south of Europe, and the East. *Peren.*
19. *Lanceolata.* Arabia.
20. *Laciniata.* Egypt and India. *Shrub.*
21. *Alternans.* Arabia.
22. *Nudicaulis.* Egypt. *Shrub.*
23. *Hispanica.* Africa, in the East, and [illegible] *Bien.*
24. *Viscosa.* Spain near Toledo. *Ann.*
- *25. *Tuberculosa.* Cape of Good Hope. (*Decandolle.*)
- *26. *Unguiculata.* Africa. (*Lamarck, Encyc.*)

913. SEDUM. *Cal.* 5-fid. *Cor.* 5-pet. squamae nectariferae 5, ad basin germinis. *Caps.* 5.

1. *Verticillatum.* Europe. *Peren.*
2. *Telephium.* England, and other parts of Europe. *Peren.*
3. *Anacampseros.* France. *Peren.*
4. *Dioscoreum.* Madeira. *Shrub.*
5. *Aizoon.* Siberia. *Peren.*
6. *Hybridum.* Ural Mts. in Tartary. *Peren.*
7. *Populifolium.* Siberia. *Shrub.*
8. *Stellatum.* Italy, France, and Switzerland. *Ann.*
9. *[illegible]* Piedmont. *Bien.*
10. *Cepaea.* Montpellier and Geneva. *Ann.*
11. *Libanoticum.* Palestine. *Peren.*
12. *Dasyphyllum.* England, Switzerland, Portugal, Spain, and Italy. *Ann.*
13. *Reflexum.* Engl. and other parts of Eur. *Per.*
14. *Virens.* Portugal. *Peren.*
15. *Rupestre.* Engl. and other parts of Eur. *Per.*
16. *Saxatile.* Norway, Switzerland, &c. *Ann.*
17. *Quadrifidum.* Rocky parts of Asia. *Peren.*
18. *Hispanicum.* Spain and Carinthia. *Peren.*
19. *Lineare.* Japan.
20. *Caeruleum.* Tunis.
21. *Album.* Engl. and other parts of Eur. *Per.*
22. *Acre.* Engl. and other parts of Eur. *Peren.*
23. *Sexangulare.* Engl. and other pts. of Eur. *Per.*
24. *Anglicum.* Britain. *Peren.*
25. *Annuum.* North of Europe. *Ann.*
26. *Pubescens.* Near Tunis.
27. *Villosum.* England, Germany, France, and the Pyrenees. *Ann.*
28. *Atratum.* Switzerland and Italy. *Ann.*
29. *Nudum.* Madeira. *Shrub.*
- *30. *Telephioides.* North America. } Michaux,
- *31. *Ternatum.* North America. } *Flor. Amer.*
- *32. *Pulchellum.* Near Knoxville. } i. *p.* 277.
- *33. *Heptapetalum.* Coasts of Barbary. (*Poir. Encyc.*)
- *34. *Altissimum.* S. of Europe. (*Encyc. Bot.*)
- *35. *Rubens.* Germany. (*Persoon.*)
- *36. *Aristatum.* Dauphiny. (*Villars.*)
- *37. *Hirsutum.* Alps of Italy. } Allioni, *Pedem.*
- *38. *Nicaeense.* Near Nice. *Ann.* }
- *39. *Atlanticum.* Mount Atlas. (*Desfont.*)
- *40. *Monregalense.* Piedmont. (*Balbis, Miscell. Bot.* p. 23.)
- *41. *Pusillum.* North Carolina. (*Michaux.*)

914. PENTHORUM. *Cal.* 5-fid. *Pet.* 0-5. *Caps.* 5-cuspidata, 5-loc.

1. *Sedoides.* Virginia. *Peren.*

915. BERGIA. *Cal.* 5-part. *Pet.* 5. *Caps.* 1, globosa, [illegible], 5 loc. 5-valv.: valvulis [illegible] *Sem.* plurima.

1. *Verticillata.* East Indies.
2. *Glomerata.* Cape of Good Hope.

916. [illegible], or TARTARIA of Persoon. *Cal.* 5-phyll. *Pet.* 5. *Caps.* [illegible], 1-loc. 5-valv. 5-sperma. *Sem.* arillata.

1. *Procumbens.* Woody parts of Crimea. *Shr.*

917. SPERGULA. *Cal.* 5-phyll. *Pet.* 5, integra. *Caps.* ovata, 1-loc. 5-valv.

1. *Arvensis.* England, and other parts of Europe. *Ann.*
2. *Pentandra.* England, Germany, France, and Spain. *Ann.*
3. *Nodosa.* England, and other parts of Europe. *Peren.*
4. *Laricina.* Siberia. *Peren.*
5. *Saginoides.* England, France, Switzerland, Siberia and Sweden. *Peren.*
6. *Subulata.* England, Germany, [illegible] and Sweden. *Ann.*
7. *Glabra.* Piedmont. *Peren.*
- *8. *[illegible]* Near Montpellier. *Shrub.* (*Thore.*)
- *9. *Grandis.* Monte Video. (*Herb. of Jussieu.*)
- *10. *[illegible]* Monte Video. (*Persoon.*)

918. CERASTIUM. *Cal.* 5-phyll. *Pet.* bifida. *Caps.* 1-loc. apice dehiscens.

1. *Perfoliatum.* Greece and Siberia. *Ann.*
2. *Vulgatum.* Engl. and other parts of Eur. *An.*

3. *Anomalum*. Hungary. *Ann.*
4. *Viscosum*. Engl. and other parts of Eur. *Ann.*
5. *Semidecandrum*. England, and other parts of Europe. *Ann.*
6. *Pentandrum*. Spain.
7. *Arvense*. Engl. Denmark, and S. of Europe. *Peren.*
8. *Lineare*. South of France. *Peren.*
9. *Dichotomum*. Growing corns of Spain. *Ann.*
10. *Longifolium*. Armenia. *Ann.*
11. *Alpinum*. Engl. and other pts. of Eur. *Per.*
12. *Repens*. France, Italy, and Carniola. *Per.*
13. *Strictum*. Austria and Switzerland. *Peren.*
14. *Suffruticosum*. South of Europe. *Shrub.*
15. *Maximum*. Siberia. *Ann.*
16. *Aquaticum*. Engl. and other pts. of Eur. *Per.*
17. *Dioicum*. Spain. *Peren.*
18. *Latifolium*. England, Switzerland, Savoy, and Austria. *Peren.*
19. *Tomentosum*. Granada. *Peren.*
20. *Manticum*. Verona and Switzerland. *Ann.*
* 21. *Sylvaticum*. Vallies of Hungary. (*Pl. Hongar.*)
* 22. *Diffusum*. Scotland?
* 23. *Brachypetalum*. Near Mans.
* 24. *Spathulatum*. St Domingo.
} *Persoon*, vol. i. p. 520.
* 25. *Ovale*, or *Vulgatum* of Smith. Europe.
* 26. *Lanatum*. Europe. (*Lapeyrouse.*)

‡ 919. AGROSTEMMA. *Cal.* 1-phyll. coriaceus. *Pet.* 5. unguiculata. *Limbo* obtuso, indiviso. *Caps.* 1-loc.

1. *Githago*. Engl. and other pts. of Eur. *Ann.*
2. *Coronaria*. Italy and Switzerland. *Bien.*
3. *Flos-jovis*. Switzerland and the Palatinate. *Peren.*
4. *Coeli rosa*. Sicily and in the East. *Ann.*
* 5. *Nicæensis*. Near Nice.

Persoon ranks Sp. 1 under the subgenus GITHAGO. *Cal.* apice 5-phyll. *Cor.* nuda.

‡ 920. LYCHNIS. *Cal.* 1 phyll. oblongus, lævis. *Pet.* 5, unguiculata: *Limbo* subbifido. *Caps.* 5-loc.

1. *Chalcedonica*. Russia. *Peren.*
2. *Flos-cuculi*. Engl. and other pts. of Eur. *Per.*
3. *Coronata*. China and Japan. *Peren.*
4. *Quadridentata*. Italy and Switzerland. *Ann.*
5. *Viscaria*. Brit. and other pts. of Eur. *Peren.*
6. *Alpina*. Mountains of Lapland, Switzerland, Siberia, and the Pyrenees. *Peren. Bien.*
7. *Magellanica*. Straits of Magellan. *Peren.*
8. *Sibirica*. Siberia. *Peren.*
9. *Læta*. Portugal. *Ann.*
10. *Dioica*. Engl. and other parts of Eur. *Peren.*
11. *Apetala*. Lapland and Siberia. *Peren.*

‡ 918. OXALIS. *Cal.* 5-phyll. *Pet.* unguibus connexa. *Stam.* inequalia 5 breviora exteriora basi connata. *Caps.* angulis dehiscens, 5-gona.

1. *Monophylla.*
2. *Lepida.*
3. *Rostrata.*
4. *Asinina.*
5. *Lanceæfolia.*
6. *Leporina.*
7. *Crispa.*
8. *Fabæfolia.*
9. *Laburnifolia.*
10. *Sanguinea.*
11. *Ambigua.*
12. *Undulata.*
13. *Fuscata.*
14. *Glandulosa.*
15. *Tricolor.*
16. *Rubro-flava.*
17. *Flaccida.*
18. *Exaltata.*
19. *Variabilis.*
20. *Grandiflora.*
21. *Sulphurea.*
22. *Purpurea.*
23. *Breviscapa.*
24. *Speciosa.*
25. *Acetosella*. Shady groves and woods of Europe. *Peren.*
26. *Magellanica*. Watery parts of Terra del Feugo. *Peren.*
27. *Marginata.*
28. *Pulchella.*
29. *Obtusa.*
30. *Lanata.*
31. *Truncatula.*
32. *Strumosa.*
33. *Punctata.*
34. *Luteola.*
35. *Macrogonya.*
36. *Fallax.*
37. *Tenella.*
38. *Minuta.*
39. *Pusilla.*
40. *Compressa.*
41. *Sericea.*
42. *Megalorhiza*. Mountains of Peru. *Peren.*
43. *Tetraphylla*. Mexico. *Peren.*
44. *Violacea*. Virginia and Canada. *Peren.*
45. *Caprina.*
46. *Cernua.*
47. *Dentata.*
48. *Livida.*
49. *Ciliaris.*
50. *Arcuata.*
51. *Linearis.*
52. *Cuneata.*
53. *Cuneifolia.*
54. *Glabra.*
55. *Bifida.*
56. *Filicaulis.*
57. *Longiflora*. Virginia.
58. *Natans.*
59. *Convexula.*
60. *Versicolor.*
61. *Elongata.*
62. *Reclinata.*
63. *Polyphylla.*
64. *Tenuifolia.*
65. *Macrostylis.*
66. *Hirta.*
67. *Tubiflora.*
68. *Secunda.*
69. *Multiflora.*
70. *Rubella.*
71. *Rosacea.*
72. *Repens*. Cape of Good Hope, Madagascar and Ceylon.
73. *Reptatrix*. Cape of Good Hope. *Peren.*
74. *Disticha*. Cape of Good Hope. *Peren.*
75. *Incarnata*. Cape of Good Hope. *Peren.*
76. *Conorhiza*, Paraguay, north of La Plata. *Per.*
77. *Crenata*. Peru. *Ann.*
78. *Lateriflora*. Cape of Good Hope. *Peren.*
79. *Dillenii*. Carolina and Guadaloupe. *Ann.*
80. *Stricta*. Virginia, Jamaica, and Europe. *Per.*
81. *Corniculata*. England, Spain, Italy, Sicily, Switzerland, Carniola, and Japan. *Ann.*
82. *Plumieri*. South America.
83. *Pentantha*. Caraccas in America.
84. *Rhombifolia*. Caraccas in America.
85. *Rosea*. Wet parts of Chili.
86. *Barrelieri*. Guiana, Brazil, and the Caraccas. *Ann.*
87. *Burmanni.*
88. *Tomentosa.*
89. *Lupinifolia.*
90. *Pectinata.*
91. *Flabellifolia.*
92. *Flava.*
93. *Sensitiva*. East Indies.
* 94. *Humilis*. Cape of Good Hope.
* 95. *Articulata*. South America.
* 96. *Virgosa*. Chili.
} *Enc. Bot.* iv. p. 687.
* 97. *Tubcrosa*. Chili. (*Molina.*)
* 98. *Enneaphylla*. Falkland Isles.
* 99. *Laciniata*. South America.
* 100. *Mallobolba*. South America.
} *Cavanilles* v. p. 7.
* 101. *Commersoni*. Monte Video. (Savigny *Enc. Bot.*)
* 102. *Quinata*. Cape of Good Hope. (*Enc. Bot*

910. RABERGIA. *Cal.* 5-part. *Pet.* 5. *Drupa* nuc 1-sperma putamine bivalvi.

1. *Frutescens*. Woods of Guiana. *Shrub.*

909. SPONDIAS. *Cal.* 5-dent. *Cor.* 5-pet. *Drupa* nucleo 5-loc.

1. *Mombin*. West Indies. *Shrub.*
2. *Myrobalanus*. South America. *Shrub.*

Class X. Decandria.

Caps. 5-loc. *Sem.* subscobiformia.

1. *Pulverulenta.* Groves of Chinchao. } *Fl. Per.*
2. *Triplinervis.* Groves of Chinchao. } p. 105.
3. *Emarginata.* Groves of Chinchao. }

XIX. Acisanthera. *Cal.* ventricosus, 5-fid. *Pet.* 5. *Anth.* sagittatæ, versatiles. *Caps.* coronata, 2-loc. polysperma.

1, *Quadrata.* (*Rhexia Acisanthera* of Willd.)

XX. Getonia. *Cal.* superus, 5-phyll. persistens. *Fil.* alternatim latiora, 5 in calycis ore. *Sem.* crustatum, oblongum, 5-striatum, cal. coronatum.

1. *Floribunda.* Woods of Coromandel. *Shrub.* (*Roxb.*)

XXI. Ceratostema. *Cal.* turbinatus 5-fid.: laciniis majusculis. *Cor.* coriacea, tubo longo, limbo recto. *Anth.* longæ, erectæ, bipart. seu bifurcati. *Bacca* globosa, truncata, coronata, 5-loc.

1. *Peruvianum.* Peru. *Shrub.* (*Jussieu.*)

XXII. Cuellara. *Cal.* 5-part. *Pet.* 5, æqualia. *Styl.* 3-gonus. *Caps.* 3-gona; 3-loc. *Sem.* imbricata, membranacea,

1. *Revoluta.* Groves of Peru. *Shrub.* } *Fl. Per.*
2. *Ferruginea.* Mts. of Peru. *Shrub.* } p. 103.
3. *Obovata.* Mts. of Peru. *Shrub.* }

XXIII. Crateria. *Cal.* 5-part. *Cor.* 0. *Nect.* crateriforme, setis 10, distinctum hirtis coronatum, et cui stamina, alterna breviora, inserta. *Stig.* 3. *Fruct.*? (*Pericarp.* 1-loc.? exsuccum?)

1. *Fasciculata.* At Chinchao. } *Fl. Peruv.* p.
2. *Capitata.* At Chinchao. } 106.

XXIV. Chunchoa, or Gimbernatia. *Cal.* 5-fid. campan. superus, deciduus. *Cor.* 0. *Drupa* 1-sperma, inequaliter alata. (See Juss. *Gen. Pl.*)

1. *Obovata.* Groves of Peru. } *Fl. Peruv.*
2. *Oblonga.* Groves of Pozuzo. } p. 274.

XXV. Tanibuca. *Cal.* urceolatus, 5-fid. basi 1-bracteatus. *Fruct.* compressus orbicularis alatus?

1. *Guianensis.* Guiana. (*Herb.* of Juss.)

Trigynia.

XXVI. Hortensia. *Flor.* difformes: *Flor.* solitarii. *Cal.* 5-dent. minutus. *Cor.* 5-pet. Flor. cymam constituentium *Cal.* 5-phyllus, maximus, coloratus, petaloideus, persistens. *Cor.* minuta, subglobosa: petal. 4-5, concavis deciduis. *Fruct.* (*Stam.* 8, 10, 11.)

1. *Speciosa.* (*Hydrangea hortensia* of Willd.)

XXVII. Tetrapteris. *Cal.* 5-part. utrinque biglandulosus. *Pet.* fimbriata, unguiculata. *Fruct.* 4-alatus, alis 2-inferioribus minoribus.

1. *Acutifolia.* (Under *Triopteris* by Willd.)
2. *Mucronata.* Cayenne. *Shrub.* } Cavan. *Diss.*
3. *Buxifolia.* Antilles. *Shrub.* } ix. p. 433.
4. *Citrifolia.* (Under *Triopteris* by Willd.)

Tetragynia.

XXVIII. Micropetalon, or Spergulastrum of *Mich.* *Cal.* 5-phyll. *Pet.* (minutissima,) integra, aut nulla. *Caps.* ovata, cal. longior. 4-valv. (Habitu *Stellariæ.*)

1. *Lanuginosum.* South of North America.
2. *Lanceolatum.* North America.
3. *Gramineum.* Pennsylvania.

See Mich. *Flor. Amer.* i. p. 275.

Pentagynia.

XXIX. Poupartia. *Cal.* minimus, 5-fid. *Stam.* disco crenato inserta. *Styl.* approximati. *Pericarp.* nuce 5-loc.

1. *Borbonica.* Bourbon. (*Jussieu.*)

REMARKS ON THE CLASS DECANDRIA.

The following plants might be expected to occur in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Several species of Geranium and Vaccinium. Several of the Asclepiadeæ. Conocarpus *racemosa.* Mangifera *axillaris.* Some species of Rhexia and Osbeckia. Gnidia *daphnæfolia.* Some species of Cuphea. Grislea *tomentosa.* Portulaca *pilosa, oleracea.* Sideroxylon *decandrum.* Amyris *decandra.* Erithalis *fruticosa.* Combretum *purpureum, alternifolium, decandrum.* Bocconia *frutescens.* Stellera *chamæjasmæ.* Laurus *Borbonia.* Viburnum *scandens.* Chlora *perfoliata*, var. *β.* Litsea *Chinensis.*

Trigynia.

Tamarix *germanica.* Polygonum *bistorta.*

Tetragynia.

Reseda *undata.*

Pentagynia.

Adoxa *moscatellina.* Some species of Geranium. Drosera *lusitanica.* Portulaca *oleracea* (*Styl.* 1. *Stig.* 5.) Rhodiola *rosea.* Coriaria *myrtifolia.* Phytolacca *Abyssinica.*

CLASS XI. DODECANDRIA.

Class XI. Dodecandria

Order I. Monogynia.

927. Bocconia. *Cal.* 2-phyll. *Cor.* 0. *Styl.* 2-fid. *Caps.* 2-valv. 1-sperma.

1. *Frutescens.* Mexico, Jamaica, Cuba, St Domingo. *Shrub.*
2. *Cordata.* China? *Shrub.*

6. *Sesamoides*. Montpellier.
7. *Fruticulosa*. Spain. Stam. 11. *Peren.*
8. *Alba*. Montpellier and Spain. *Ann.*
9. *Undata*. Spain. *Peren.*
10. *Lutea*. Engl. and other parts of Eur. *Ann.*
11. *Phyteuma*. France, Italy, Austria, Switzerland, and in the East. *Ann.*
12. *Mediterranea*. Palestine. *Ann.*
13. *Odorata*. Egypt. *Bien.*
* 14. *Stricta*. Spain. (*Thibaut.*)

0. VISNEA. *Cal.* 5-phyll. inferus. *Cor.* 5-pet. *Stig.* 3. *Nux* 2 seu 3-loc. seminifera.
1. *Mocanera*. Canary Islands. *Shrub.*

959. EUPHORBIA. *Cor.* 4 seu 5 pet. calyci insidens. *Cal.* 1. phyll. ventricosus. *Caps.* 3-cocca.
1. *Antiquorum*. India.
2. *Canariensis*. Canary Islands.
3. *Virosa*. Cape of Good Hope.
4. *Heptagona*. Ethiopia.
5. *Mammellaris*. Ethiopia.
6. *Cereiformis*. Ethiopia.
7. *Officinarum*. Do. and warm parts of Africa.
8. *Triaculeata*. At Musa in Arabia Felix.
9. *Nereifolia*. India.
10. *Hystrix*, or *Loricata*. Cape of Good Hope.
11. *Tribuloides*. Canary Islands.
12. *Stellata*. 16. *Tuberculata*.
13. *Cucumerina*. 17. *Anacantha*.
14. *Meloformis*. 18. *Clava*.
15. *Caput medusæ*. 19. *Bupleurifolia*.

Sp. 15 from Ethiopia, Sp. 12—19 from the Cape.

20. *Lophogona*. Madagascar.
21. *Mauritanica*. Coasts of Africa.
22. *Piscatoria*. Madeira, and Canary Islands.
23. *Balsamifera*. Canary Islands.
24. *Tirucalli*. India. 25. *Laurifolia*. Peru.
26. *Pyrifolia*. Mauritius.
27. *Tithymaloides*. 29. *Cyathophora*.
28. *Heterophylla*. 30. *Nudiflora*.

Sp. 27—29 from America.

31. *Cotinifolia*. Curaçoa.
32. *Mellifera*. Madeira.
33. *Glabrata*. Jamaica, and the Caribbee Islands.
34. *Linarifolia*.
35. *Linifolia*. Island of Dominica.
36. *Cuneata*. Arabia Felix.
37. *Ocymoidea*. Campechy.
38. *Lævigata*. East Indies.
39. *Origanoides*. Ascension Island. *Peren.*
40. *Atoto*. Society Islands. *Peren.*
41. *Hypericifolia*. West Indies. *Ann.*
42. *Prostrata*. West Indies. *Ann.*
43. *Rosea*. Sandy parts of East Indies. *Ann.*
44. *Maculata*. North America. *Ann.*
45. *Scordifolia*. Africa, Senegal? *Ann.*
46. *Picta*. Island of Venezuia. *Peren.*
47. *Hirta*. India. *Ann.*
48. *Pilulifera*. India. *Ann.*
49. *Brasiliensis*. Brasil.
50. *Hyssopifolia*. America.
51. *Thymifolia*. India. *Ann.*
52. *Parviflora*. India. *Ann.*
53. *Canescens*. Spain. *Ann.*
54. *Chamæsyce*. South of Europe, Siberia, Mesopotamia, and West Indies. *Ann.*
55. *Granulata*. Arabia Felix.
56. *Peplis*. England, Narbonne, Spain, and Carniola. *Ann.*
57. *Polygonifolia*. Canada and Virginia. *Ann.*
58. *Linearis*. Island of St Cruz.
59. *Graminea*. Carthagena.
60. *Ipecacuanhæ*. Virginia and Canada. *Peren.*
61. *Portulacoides*. Philadelphia. *Peren.*
62. *Adiantoides*. Peru.
63. *Myrtifolia*. Cold Mts. of Jamaica. *Shrub.*
64. *Imbricata*. Portugal. *Shrub.*
65. *Elliptica*. Peru. *Ann.*
66. *Rubra*. Hills of Spain, and S. of France. *Ann.*
67. *Herniariæfolia*. Candia. *Ann.*
68. *Peplus*. Engl. and other parts of Eur. *Ann.*
69. *Falcata*. South of Europe. *Ann.*
70. *Exigua*. England, France, Spain, Switzerland, and Alsace. *Ann.*
71. *Obliterata*. Jamaica, and Hispaniola.
72. *Spathulata*. At Monte Video Brasil.
73. *Micrantha*. North of Perthshire. *Ann.*
74. *Dracunculoides*. Mauritius. *Ann.*
75. *Tuberosa*. Egypt and Ethiopia. *Shrub.*
76. *Lathyris*. France, Italy, Switzerland, Germany, and Carniola. *Bien.*
77. *Terracina*. Spain. *Ann.*
78. *Diffusa*. Fields of Austria. *Ann.*
79. *Apios*. Candia. *Per.* 80. *Læta*. *Shrub.*
81. *Genistoides*. Cape of Good Hope. *Shrub.*
82. *Spinosa*. Candia and Provence. *Shrub.*
83. *Epithymoides*. Italy and Austria. *Peren.*
84. *Villosa*. Wet meadows of Hungary. *Per.*
85. *Dulcis*. Germany, Switzerland, France, and Italy. *Peren.*
86. *Ambigua*. Hungary.
87. *Carniolica*. Woody Alps of Carniola. *Per.*
88. *Angulata*. Austria. *Peren.*
89. *Pithyusa*. Spain, Italy, Carniola, and Marseilles. *Peren.*
90. *Portlandica*. S. of Engl. in Devonshire. *Shr.*
91. *Saxatilis*. Stony parts of Austria. *Peren.*
92. *Paralias*. Engl. and other parts of Eur. *Per.*
93. *Juncea*. Island of Porto Santo near Madeira. *Peren.*
94. *Aleppica*. Candia and Aleppo. *Peren.*
95. *Pinea*.
96. *Segetalis*. Barbary, Russia, England, France, and Germany. *Ann.*
97. *Provincialis*. Hills of Provence. *Ann.*
98. *Helioscopia*. Engl. and other pts. of Eur. *An.*
99. *Pubescens*. Tunis. *Ann.*
100. *Serrata*. Narbonne, Spain, Italy, and the East. *Bien.*
101. *Verrucosa*. France, Switzerland, Italy, and the East. *Shrub.*
102. *Glauca*. New Zealand. *Shrub.*
103. *Punicea*. Mts. in the interior of Jamaica.
104. *Corollata*. Virginia and Canada. *Peren.*
105. *Coralloides*. Sicily, Barbary, the East. *Per.*
106. *Pilosa*. Siberia. *Peren.*
107. *Orientalis*. In the East.
108. *Squamosa*. Cappadocia.
109. *Platyphyllos*. England, France, Germ. *Ann.*
110. *Literata*. *Ann.*
111. *Esula*. Scotland at Abercorn, Germany, Holland, France, Switzer. and Carniola. *Per.*
112. *Gerardiana*. France, Hanover, Mansfeldt, Bohemia, Austria. *Peren.*
113. *Cyparissias*. England, Germany, Bohemia, Switzerland, and south of France. *Peren.*
114. *Nicæensis*, or *Amygdaloides*. Nice, Pampe-

Class XI. Dodecandria.

Class XI. Dodecandria.

luna, and warm parts of Austria. *Peren.*
115. *Myrsinites.* Calabria and Montpellier. *Per.*
116. *Palustris.* Sweden, Germ. Holland. *Peren.*
117. *Pallida.* Dry woods of Hungary. *Peren.*
118. *Emarginata.* Italy. *Peren.*
119. *Hiberna.* Ireland, England, Austria, Pyrenees, and Siberia. *Peren.*
120. *Salicifolia.* Woods of Hungary. *Peren.*
121. *Dendroides.* Italy, Candia, and the Hieres Islands. *Shrub.*
122. *Amygdaloides.* Engl. France and Germ. *Per.*
123. *Sylvatica.* South of Europe. *Shrub.*
124. *Characias.* England, France, Spain, and Italy. *Shrub.*
*125. *Uncinata.* Arabia Felix. *Shr.* (Vahl. *Symb.*)
*126. *Virgata.* Coasts of Africa. (Lamarck, *Encyc.* ii. 418.)
*127. *Geniculata.* Cuba. (Ortega, *Dec.* 18.)
*128. *Glaucophylla.* Senegal. (*Persoon.*)
*129. *Microphylla.* East Indies. (Lam. *Encyc.*)
*130. *Goliana.* Bourbon. (Lamarck, *Encyc.*)
*131. *Ophthalmica.* Rio Janeiro. (*Herb.* of Juss.)
*132. *Satureioides.* India. (Lamarck, *Encyc.*)
*133. *Graminifolia.* Florida, Georgia. *Ann.* (*Mich.*)
*134. *Tomentosa.* Senegal. (*Herb.* of Lamarck).
*135. *Canaliculata.* Near Carthagena. *Ann.* (Lamarck, *Encyc.*)
*136. *Dentata.* Near Knoxville. } Mich. *Fl.*
*137. *Mercurialis.* Near Knoxville. } *Am.* i.
*138. *Pubentissima.* Carolina. } 211.
*139. *Serpyllifolia.* Warm parts of America. (*Herb.* of Thibaut.)
*140. *Avenia.* (*Thibaut.*)
*141. *Retusa.* Spain and Montpell. *Ann.* (*Cavan.*)
*142. *Leptophylla.* Dauphiny. (*Lamarck.*)
*143. *Valentina.* Valentia. (*Ortega.*)
*144. *Isalis.* Spain. } See Lam.
*145. *Ericoides.* Cape of Good Hope. } *Encyc.* ii.
*146. *Corifolia.* Cape of Good Hope. } p. 430.
*147. *Purpurata.* Near Paris. (*Thuil.*)
*148. *Biumbellata.* Barbary and Montpel. (*Poiret.*)
*149. *Diversifolia.* Barbary near Tozzer. } Desf. *Atl.*
*150. *Paniculata.* Barbary. } i. p. 385.
*151. *Cornuta.* Egypt. (*Persoon.*)
*152. *Valerianæ.* Island of Chio. } Lamarck,
*153. *Denticulata.* Natolia. } *Encyc.* ii. 455.
*154. *Atlantica.* Mountains of Atlas. (*Desfont.*)
*155. *Lucida.* Hungary. (*Pl. Hungar.*)
Species 1—38 shrubby.

Persoon seems to think that this genus might be referred to MONŒCIA.

ORDER IV. TETRAGYNIA.

962. APONOGETON. *Amentum* e squamis compositum. *Cal.* 0. *Cor.* 0. *Caps.* 4, 3-spermæ.
1. *Monostachyon.* Marshes of the E. Indies. *Per.*
2. *Crispum.* Low parts of Ceylon.
3. *Distachyon.* Cape of Good Hope. *Peren.*
4. *Angustifolium.* Cape of Good Hope. *Peren.*

961. CALLIGONUM. *Cal.* 5-part. *Cor.* 0. *Fil.* circiter 16, basi subcoalita. *Germ.* superum tetraëdrum. *Styli* 4. *Nux* crusta polyplera seu polychaeta 1-loc.
1. *Polygonoides.* Mount Ararat. *Shrub.*
2. *Comosum.* Egypt and Barbary. *Shrub.*
3? *Pallasia.* Desert between the Wolga and the Ryhenus, near the Caspian Sea. *Shrub.*

ORDER V. PENTAGYNIA.

963. GLINUS. *Cal.* 5-phyll. *Cor.* 0. *Nectaria* setis bifidis. *Caps.* 5-angul. 5-loc. 5-valvis, polysperma.
1. *Lotoides.* Spain and Asia. *Ann.*
2. *Setiflorus.* Wet woods of Arabia Felix. *Shr.*
3. *Dictamnoides.* India. *Shrub.*

964. BLACKWELLIA. *Cal.* 5-fid. semisuperus. *Cor.* 15-pet. *Caps.* 1 loc. polysperma.
1. *Integrifolia.* Mauritius. *Shrub.*
2. *Paniculata.* Bourbon. *Shrub.*
3. *Axillaris.* Madagascar. *Shrub.*

DODECAGYNIA.

‡ 965. SEMPERVIVUM. *Cal.* 12-part. *Pet.* 12. *Caps.* 12, polyspermæ.
1. *Arboreum.* Portugal, Carniola, Corcyra, and Zacynthe. *Shrub.*
2. *Canariense.* Canary Islands. (*Stam.* 18. *Pist.* 9.) *Shrub.*
3. *Glutinosum.* Madeira. (*Stam.* 16 or 18 *Pist.* 8 or 9.) *Shrub.*
4. *Glandulosum.* Madeira. *Shrub.*
5. *Tectorum.* On walls and on roofs in Englan and other parts of Europe. *Peren.*
6. *Globiferum.* Russia, Austria, and Germany (*Stam.* 6. *Pist.* 6.) *Peren.*
7. *Villosum.* Madeira. (*Stam.* 12—16. *Pis* 8.) *Ann.*
8. *Tortuosum.* Canary Islands. (*Stam.* 16. *Pis* 8.) *Shrub.*
9. *Stellatum.* Mount Baldo in Tunis. *Ann.*
10. *Arachnoideum.* Italy, Switzerland, and P renees. *Peren.*
11. *Hirtum.* Switzerl. (*Stam.* 12. *Pist.* 6.) *Pere*
12. *Montanum.* Switzerland and Silesia. *Pe*
13. *Sediforme.* South of Europe. *Peren.*
14. *Monanthos.* Canary Islands. *Peren.*

NEW GENERA.

ORDER I. MONOGYNIA.

New Genera.

I. BRUGUIERA. *Cal.* lacin. lineares, 10-12-fid. *Pet.* 10-12, conduplicata, apice bifida. *Stam.* 20-22, per paria petal. inserta. *Caps.* 1-loc. 1-sperma, a cal. orta. *Sem.* basi perispermio carnoso cinctum, angulatum clavatum.
1. *Gymnorhiza.* (*Rhizophora gymnorhiza* Willd.)

II. VALDESIA. *Cal.* duplex: fructus 4-phyllus floris 6-partitus. *Cor.* 6-pet. *Nect.* tubulosum 6-dent. dentibus bifidis. *Anth.* 3-gonæ, assurgentes. *Bacca* coronata, 6-loc. *Sem.* numerosa, ossea.
1. *Repens.* Groves of Peru. *Flor. Peruv.* p. 121.

2. *Ovata.* Groves of Peru. *Flor. Peruv.* p. 121.

III. Axinea. *Cal.* inferus, cyathiformis. *Pet.* 6, margini interiori cal. insidentia. *Stam.* alterna breviora. *Anth.* calcaratæ, perforatæ. *Caps.* 6-loc. 6-valv. polysperma.

1. *Lanceolata.* Woods of Peru. *Shr.* } *Fl. Per.*
2. *Purpurea.* High groves of Peru. *Sh.* } 122.

IV. Podoria. *Cal.* 4-phyll. foliol. ovati. *Styl.* teres, brevis persistens. *Fruct.* pedicellatus tomentosus, 1-spermus.

1. *Senegalensis.* Senegal. *Shrub.* (*Persoon.*)

V. Baitaria. *Cal.* 4-phyll. laciniis 2-longioribus, distantibus. *Cor.* tubulosa, 5-fida. *Stig.* 3-fid. *Caps.* 3-quetra 3-loc. polysperma. *Recept.* valvularum parietibus adnata.

1. *Acaulis.* Stony parts in Peru. (*Fl. Per.* 116.)

VI. Pemphis. *Cal.* turbinatus sulcatus, 12 dent. *Pet.* 6. *Caps.* subglobosa, 1-loc. circumscissa.

1. *Acidula.* (*Lythrum pemphis* of Willd.)

VII. Tricuspis. *Cal.* 5-dent. *Pet.* 5, tricuspidata. *Nect.* annulare, 10-gonum. *Stam.* 15 inter nectar. et germ. *Anth.* biperforatæ. *Caps.* 3-loc. 3-valv. valvulis septiferis. *Sem.* pauca.

1. *Dependens.* Groves of Chili. (*Fl. Per.* 112.)

VIII. Evandra. *Spiculæ* subunifloræ; *squamis* undique imbricatis, plurimis vacuis. *Setæ squamulæve* hypogynæ nullæ. *Stam.* 12! (vel plura). *Nux* cylindracea, crustacea; *nucleo* lævi. (R. Brown, *Prodr.* p. 239.)

Class XI. Dodecandria.

1. *Aristata.* New Holland.
2. *Pauciflora.* New Holland.

Pentagynia.

IX. Brunellia. *Cal.* 5-part. *Cor.* 0. *Nect.* glandulæ tot, quot stamina. *Caps.* 5, stellatim positæ, 2-spermæ, 1-valv. longitudinaliter dehiscentes. *Sem.* pedicellata, arillata. (*Stam.* 10-14.)

1. *Inermis.* Groves of Peru. } See *Fl. Per.*
2. *Aculeata.* Groves of Peru. } p. 127.
3. *Comocladifolia.* Peruvian Andes near Popayan.
4. *Tomentosa.* Cold parts near Almaguer.
5. *Ovalifolia.* Mount Saragaru near Loxa.
6. *Acutangula.* New Granada.

For Sp. 3—6, see Humboldt, *Plant. Equinoct.*

Polygynia.

X. Gastonia. *Cal.* integer. *Pet.* 5-6. *Stam.* 10-12; ad singulum petalum binata. *Styli* 10-12 minimi, basi juncti. *Caps.* 10-12-loc. (*Jussieu.*)

1. *Spongiosa.* Bourbon. *Shrub.*

REMARKS ON THE CLASS DODECANDRIA.

The following plants might be expected to occur in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Melastoma, *calyptrata, croata, patens.* Cleome *viscosa, dodecandra.* Chlora *dodecandra.* Swartzia *dodecandra.* Corchorus *olitorius, 3-locularis.* Rivina *octandra* seu *dodecandra.* Samyda *pubescens, serrulata.* Passerina *capitata.*

Tetragynia.

Tormentilla *erecta.* Aponogeton *distachyum.*

Pentagynia.

Helicteres *apetala.*

Dodecagynia.

Alisma *cordifolia.*

CLASS XII. ICOSANDRIA.

Class XII. Icosandria.

Monogynia.

I. Cactus. *Cal.* 1-phyllus, superus, imbricatus. *Cor.* multiplex. *Bacca* 1-loc. polysperma.

1. *Mammillaris.* Warm parts of America. *Shr.*
2. *Melocactus.* America and Jamaica. *Shrub.*
3. *Nobilis.* Mexico. *Shrub.*
4. *Cylindricus.* Peru. *Shrub.*
5. *Pitaiaya.* Carthagena. *Shrub.*
6. *Heptagonus.* America. *Shrub.*
7. *Tetragonus.* Curaçoa, and warm parts of America. *Shrub.*
8. *Hexagonus.* Surinam. *Shrub.*
9. *Pentagonus.* America. *Shrub.*
10. *Repandus.* Warm parts of America. *Shrub.*
11. *Lanuginosus.* Curaçoa. *Shrub.*
12. *Peruvianus.* Jamaica and Peru. *Shrub.*
13. *Royeni.* America. *Shrub.*
14. *Grandiflorus.* Jamaica and Vera Cruz. *Shr.*
15. *Flagelliformis.* Warm parts of Amer. *Shr.*
16. *Pendulus.* On branches of the highest trees in Jamaica and Hispaniola. *Shrub.*
17. *Parasiticus.* America.
18. *Triangularis.* Brazil, Jamaica, and Martinique. *Shrub.*
19. *Moniliformis.* Warm parts of America. *Per.*
20. *Opuntia.* America, Peru, and Virginia; now in Spain, Italy, Portugal, Switzerland, and Minorca. *Shrub.*
21. *Ficus indica.* Warm parts of America. *Shrub.*
22. *Tuna.* Warm parts of America and Jamaica. *Shrub.*
23. *Coccinellifer.* Warm parts of America and Jamaica. *Shrub.*
24. *Curassavicus.* Curaçoa. *Shrub.*
25. *Spinosissimus.* Jamaica. *Shrub.*
26. *Alatus.* On trees in the cold parts of Jamaica. *Shrub.*
27. *Phyllanthus.* Brazil, Surinam, and south of America. *Shrub.*

Class XII.
Icosandria.

28. *Pereskia.* Warm parts of America, Jamaica, and Margaretha. *Shrub.*
29. *Portulacifolius.* Warm pts. of America. *Shr.*
* 30. *Glomeratus.* St Domingo.
* 31. *Divaricatus.* Peru.
* 32. *Paniculatus.* St Domingo.
Lam. *Encyc.* i. p. 537.

972. EUGENIA. *Cal.* 4-part. superus. *Pet.* 4. *Bacca* 1-loc. 1-sperma.
1. *Malaccensis.* India.
2. *Jambos.* India. *Shrub.*
3. *Baruensis.* Island of Baru near Carthagena. *Shrub.*
4. *Floribunda.* Island of Santa Cruz. *Shrub.*
5. *Buxifolia.* Barren fields of Hispaniola. *Shr.*
6. *Axillaris.* Mountains of Jamaica. *Shrub.*
7. *Sinemariensis.* At the river Sinemara in Guiana. *Shrub.*
8. *Lateriflora.* Island of St Cruz. *Shrub.*
9. *Crenulata.* Hispaniola. *Shrub.*
10. *Alpina.* Top of the Blue Mts. in Jam. *Shr.*
11. *Ligustrina.* Hispaniola. *Shrub.*
12. *Pseudo-psidium.* Martinique. *Shrub.*
13. *Uniflora.* Brasil. *Shrub.*
14. *Patrisii.* South America. *Shrub.*
15. *Zeylanica.* Ceylon. *Shrub.*
16. *Cotinifolia.* Cayenne. *Shrub.*
17. *Latifolia.* Guiana. *Shrub.*
18. *Undulata.* Cayenne and Guiana. *Shrub.*
19. *Mini.* Cayenne and Guiana. *Shrub.*
20. *Fragrans.* High Mts. in the S. of Jam. *Shr.*
21. *Punctata.* Island of St Cruz. *Shrub.*
22. *Cumete.* Woods of Guiana. *Shrub.*
23. *Guianensis.* Woods of Guiana near Mount Serpent. *Shrub.*
24. *Caryophyllata.* In the Moluccas. *Shrub.*
25. *Elliptica.* New Holland. *Shrub.*
26. *Tomentosa.* Guiana. *Shrub.*
27. *Trinervia.* Cayenne. *Shrub.*
28. *Acutangula.* India. *Shrub.*
29. *Racemosa.* India. *Shrub.*
30. *Laurina.* Ceylon. *Shrub.*
* 31. *Macrophylla.* India.
* 32. *Cymosa.* Molucca Isles.
* 33. *Paniculata.* Isle of Bourbon.
* 34. *Glomerata.* Isle of Bourbon.
* 35. *Corymbosa.* India. * 36. *Javanica.* Java.
* 37. *Venosa.* Isle of Madagascar.
* 38. *Violacea.* Isle of France.
* 39. *Parviflora.* Java. * 40. *Lanceolata.*
* 41. *Marginata.* St Domingo. (*Herb.* of Jussieu.)
* 42. *Multiflora.* Cayenne.
* 43. *Divaricata.* Martinique.
* 44. *Brasiliensis.* Brasil.
* 45. *Angustifolia.* St Domingo.
* 46. *Orbiculata.* Isle of Bourbon.
* 47. *Buxifolia.* Isle of Bourbon.
* 48. *Lucida.* Isle of France.
* 49. *Mespiloides.* Isle of Bourbon.
* 50. *Tinifolia.* Isle of France.
* 51. *Cassinoides.* Madagascar.
* 52. *Elliptica.* Isle of France.
* 53. *Maleolens.* Antilles. (*Herb.* of Jussieu.)
* 54. *Fœtida.* Antilles. (*Herb.* of Jussieu.)

For an account of these new species, see Lamarck, *Encyc. Method.* iii. p. 199, &c.

967. PHILADELPHUS. *Cal.* 4 seu 5-part. superus. *Pet.* 4 seu 5. *Styl.* 4-fid. *Caps.* 4 seu 5-loc. polysperma.
1. *Coronarius.* South of Europe. *Shrub.*
2. *Inodorus.* Carolina. *Shrub.*

968. LEPTOSPERMUM. *Cal.* 5-fid. semisuperus. *Pet.* 5 unguiculata staminibus longiora. *Stig.* capitatum. *Caps.* 4-vel 5-loc. *Sem.* angulosa.
1. *Scoparium.* New Zealand.
2. *Thea.*
3. *Flavescens.*
4. *Attenuatum.*
5. *Lanigerum.*
6. *Pubescens.*
7. *Parvifolium.*
8. *Arachnoideum.*
9. *Juniperinum.*
10. *Baccatum.*
11. *Ambiguum.*
12. *Virgatum.* New Caledonia. *Shrub.*
* 13. *Stellatum.*
* 14. *Porophyllum.*
* 15. *Multiflorum.*
See Cavanilles, *Icones*, &c. iv. p. 16.

Species 2—11 shrubby, and from New Holland.

969. FABRICIA. *Cal.* 5-fid. semisuperus. *Pet.* 5 sessilia. *Stig.* capitatum. *Caps.* multiloc. *Sem.* alata.
1. *Myrtifolia.* New Holland. *Shrub.*
2. *Lævigata.* New Holland. *Shrub.*

970. METROSIDEROS. *Cal.* 5-fid. semisuperus. *Pet.* 5. *Stam.* longissima exserta. *Stig.* simpl. *Caps.* 3 s. 4-loc.
1. *Hispida.* New Holland. *Shrub.*
2. *Floribunda.* New Holland. *Shrub.*
3. *Costata.* New Holland. *Shrub.*
4. *Diffusa.* New Zealand. *Shrub.*
5. *Villosa.* Otaheite. *Shrub.*
6. *Florida.* New Zealand. *Shrub.*
7. *Glomulifera.* New Holland. *Shrub.*
8. *Angustifolia.* Cape of Good Hope. *Shrub.*
9. *Ciliata.* New Caledonia. *Shrub.*
10. *Linearis.*
11. *Lanceolata.*
12. *Saligna.*
13. *Viminalis*
14. *Capitata.*
* 15. *Umbellata.*
* 16. *Cordifolia.* *Shrub.*
* 17. *Lanceolata.* Different from species 11.
* 18. *Marginata.*

Sp. 15—18, see Cavan. *Ic.* iv. p. 20.

971. PSIDIUM. *Cal.* 5-fid. superus. *Pet.* 5. *Bacca* 1-loc. polysperma.
1. *Pyriferum.* East and West Indies. *Shrub.*
2. *Pumilum.* Ceylon. *Shrub.*
3. *Aromaticum.* Cayenne and Guiana. *Shrub.*
4. *Grandiflorum.* Woods of Cayenne. *Shrub.*
5. *Decaspermum.* Society Isles. *Shrub.*
6. *Pomiferum.* East and West Indies. *Shrub.*
7. *Guineense.* Prince's Island near Guinea. *Shr.*
8. *Montanum.* Mountains of Jamaica. *Shrub.*
* 9. *Guianense.* Guiana.
* 10. *Amplexicaule.* Antilles.
Herbarium of Jussieu.
* 11? *Lineatifolia.* Groves of Peru. (*Flor. Per.* 22.)

973. MYRTUS. *Cal.* 5-fid. superus. *Pet.* 5. *Bacca* 2 seu 3-loc. polysperma.
1. *Communis.* S. of Europe, Asia, Africa. *Shr*—
2. *Tenuifolia.* New Holland. *Shrub.*
3. *Tomentosa.* China, Cochinchina. *Shrub.*
4. *Cerasina.* Caribbee Isles. *Shrub.*
5. *Procera.* Woods of Hispaniola. *Shrub.*
6. *Bracteata.* East Indies. *Shrub.*
7. *Biflora.* Jamaica. *Shrub.*
8. *Trinervia.* New Holland. *Shrub.*
9. *Lucida.* Surinam. *Shrub.*
10. *Lævis.* Japan. *Shrub.*
11. *Ruscifolia.* East Indies. *Shrub.*
12. *Dioica.* America. *Shrub.*
13. *Lineata.* Mountains of St Domingo. *Shr.*
14. *Cordata.* West Indies. *Shrub.*

Class XII.
Icosandria.

12. ***Punctata.*** North America. ***Shrub.***
13. ***Crus galli.*** Virginia. *Shrub.*
14. *Indica.* India. *Shrub.*
15. *Maura.* Barbary. *Shrub.*
16. ***Oxyacantha.*** Engl. and other pts. of Eur. *Shr.*
17. ***Monogyna.*** Europe and Siberia. *Shrub.*
18. ***Pentagyna.*** Hungary and the Bannat. *Shr.*
19. ***Azarolus.*** Woods of Hungary. ***Shrub.***
* 20. *Caroliniana.* Carolina. } Poiret, *Encyc.* iv.
* 21. ***Latifolia.*** America. } p. 444.
* 22. ***Prunifolia.*** Canada. }
* 23. ***Ferruginea.*** Peru. (*Herb.* of Jussieu.)
* 24. *Obtusifolia.* Peru.
* 25. ***Pyracantha.*** S. of France and Italy. (*Styl.* 5.)
* 26. ***Pauciflora.*** Near Lausanne. (Poiret, *Id.*)
* 27. ***Unilateralis.*** Carolina. (*Herb.* of Lamarck.)
* 28. ***Linearis.*** North America.
* 29. ***Triloba.*** Barbary. *Shrub.* (Poiret, *Id.*)
* 30. *Spathulata.* N. America. } See Mich. *Fl.*
* 31. *Michauxii.* Upper Carolina. } *Am.* i. p. 288.
* 32. *Tanacetifolia.* In the East. (Poiret, *Id.*)
* 33. ***Apiifolia.*** Woods of Carolina. (*Mich.* 287.)

988. Waldsteinia. *Cal.* 10-fid. laciniis alternis minoribus. *Pet.* 5. ***Sem.*** 2-obvata.
1. ***Geoides.*** Woods of Hungary. ***Peren.***

ORDER III. TRIGYNIA.

989. Sorbus. ***Cal.*** 5-fid. ***Pet.*** 5. ***Bacca*** infera, 3-sperma.
1. ***Aucuparia.*** Cold parts of Europe. *Shrub.*
2. ***Hybrida.*** Gothland and Thuringia. *Shrub.*
3. ***Domestica.*** Warm parts of Europe. *Shrub.*
* 4. ***Latifolia.*** Near Fountainbleau. (***Lam.***)

Persoon includes under this genus Sp. 19—22 of the genus Pyrus, and he places it under Digynia.

990. Sesuvium. ***Cal.*** 5-part. coloratus. *Pet.* 0. *Caps.* ovata, 3-loc. circumscissa, polysperma.
1. ***Portulacastrum,*** or ***pedunculatum.*** Coasts of India. ***Ann.***
* 2. *Sessile.* } Persoon, *Synopsis,* ii. p. 39.
* 3. *Revolutum.* }

PENTAGYNIA.

993. Tetragonia. *Cal.* 3 seu 5-part. *Pet.* 0. *Drupa* infera, nuce 3 seu 8-loc.
1. *Fruticosa.* *Shrub.* 4. *Hirsuta.*
2. *Decumbens.* *Shrub.* 5. *Spicata.*
3. *Herbacea.* *Peren.* 6. *Echinata.* *Ann.*
7. *Expansa.* New Zealand, Friendly Isles, and Japan. *Ann.*
8. *Crystallina.* Peru. *Ann.*

Sp. 1—6 from the Cape.

‡ 991. Mespilus. *Cal.* 5-fid. *Pet.* 5. *Bac.* infera, 5-sperma.
1. *Germanica.* Engl. and other pts. of Eur. *Shr.*
2. *Japonica.* Japan. *Shrub.*
3. *Pyracantha.* Provence and Italy. *Shrub.*
4. *Chamæ-mespilus.* Hills of Austria and the Pyrenees. *Shrub.*
5. *Cotoneaster.* Cold parts of Europe, Pyrenees, Siberia, and Mount Ararat. ***Shrub.***
6. ***Tomentosa.*** ***Shrub.***
* 7. ***Axillaris.*** (***Cratægus parvifolia*** of Willd.)

‡ 992. Pyrus. ***Cal.*** 5-fid. ***Pet.*** 5. ***Pomum*** inferum, 5-loc. polyspermum.
1. ***Arbutifolia.*** Virginia. ***Shrub.***
2. ***Botryapium.*** Virginia and Canada. ***Shrub.***
3. ***Ovalis.*** North America. ***Shrub.***
4. ***Amelanchier.*** Germany, Switzerland, Austria, and France. ***Shrub.***
5. *Cretica.* Mount Ida in Candia. ***Shrub.***
6. *Communis.* Engl. and other pts. of Eur. *Shr.*
7. ***Pollveria.*** Germany. ***Shrub.***
8. ***Nivalis.*** Alps of Austria. ***Shrub.***
9. ***Malus.*** Engl. and other parts of Eur. ***Shrub.***
10. *Dioica.* ***Shrub.***
11. *Spectabilis.* China. ***Shrub.***
12. ***Prunifolia.*** Siberia? ***Shrub.***
13. *Baccata.* Siberia and Dauria, at the river Schilk. ***Shrub.***
14. *Coronaria.* Virginia. ***Shrub.***
15. ***Angustifolia.*** North America. ***Shrub.***
16. ***Japonica.*** Japan. ***Shrub.***
17. *Cydonia.* Germany. ***Shrub.***
18. *Salicifolia.* Siberia and Caucasus. ***Shrub.***
19. ***Aria.*** Eng. and other parts of Europe. ***Shr.***
20. *Intermedia.* Sweden, Russia. ***Shrub.***
21. ***Torminalis.*** Engl. and other pts. of Eur. ***Shr.***
22. *Hybrida.* *Shrub.*
* 23. ***Persica.*** Persia. (***Persoon.***)

Persoon has transferred several of the preceding species to other genera, and he includes species 9—15 under the sub-genus Malus. ***Fruct.*** globosus, utrinque umbilicatus (acidior.) ***Cor.*** plerisque rubella. ***Styli*** basi connati, plerumque villosi.

994. Mesembryanthemum. ***Cal.*** 5-fid. ***Pet.*** numerosa, linearia, basi cohærentia. ***Caps.*** carnosa, infera, polysperma.
1. ***Criniflorum.***
2. *Spathulatum.* ***Ann.***
3. *Testiculare.* *Per.*
4. *Linguiforme.* *Per.*
5. *Latum.* *Peren.*
6. *Obliquum.* *Peren.*
7. *Longum.* *Peren.*
8. *Rostratum.* *Peren.*
9. *Compactum.* *Per.*
10. *Caninum.* *Peren.*
11. ***Felinum.*** *Peren.*
12. *Tigrinum.* *Peren.*
13. *Murinum.* *Peren.*
14. *Albidum.* *Peren.*
15. *Bellidiflorum.* *Per.*
16. *Limpidum.* *Ann.*
17. *Tripolium.* *Bien.*
18. *Dolabriforme.* *Sh.*
19. *Difforme.* *Shrub.*
20. *Calamiforme.* *Shr.*
21. *Digitatum.* *Shrub.*
22. *Minimum.* *Shrub.*
23. *Pinnatifidum.* *An.*
24. *Cordifolium.* *Shr.*
25. *Crystallinum.* *Shr.*
26. *Humifusum.* *Shr.*
27. *Papulosum.* *Bien.*
28. *Sessiliflorum.* *An.*
29. *Glabrum.* *Ann.*
30. *Helianthoides.* *An.*
31. ***Pomeridianum.*** ***An.***
32. ***Pallens.*** ***Shrub.***
33. ***Expansum.*** ***Peren.***
34. ***Tortuosum.*** ***Peren.***
35. ***Apetalum.*** ***Ann.***
36. ***Copticum.*** ***Ann.***
37. ***Ciliatum.*** ***Shrub.***
38. ***Caducum.*** ***Ann.***
39. ***Geniculiflorum.*** ***Sh.***
40. ***Clavatum.*** ***Shrub.***
41. ***Noctiflorum.*** ***Shr.***
42. ***Umbellatum.*** ***Shr.***
43. ***Bicolorum.*** ***Shrub.***
44. ***Tuberosum.*** ***Shrub.***
45. ***Tenuifolium.*** ***Shr.***
46. ***Stipulaceum.*** ***Shr.***
47. ***Corniculatum.*** ***Per.***
48. ***Loreum.*** ***Peren.***
49. ***Veruculatum.*** *Shr.*
50. ***Echinatum.*** ***Shrub.***
51. ***Viridiflorum.*** ***Shr.***
52. ***Splendens.*** *Shrub.*
53. ***Villosum.*** ***Shrub.***
54. ***Micans.*** ***Shrub.***
55. ***Grossum.*** ***Shrub.***
56. ***Nodiflorum.*** ***Ann.***
57. ***Capillare.*** ***Shrub.***
58. ***Læve.*** ***Shrub.***
59. ***Brachiatum.*** ***Shr.***
60. ***Brevifolium.*** ***Shr.***
61. ***Hispidum.*** ***Shrub.***
62. ***Striatum.*** ***Shrub.***
63. ***Barbatum.*** ***Shrub.***
64. ***Falcatum.*** ***Shrub.***

65. *Glomeratum. Shr.*
66. *Reptans. Shrub.*
67. *Deflexum. Shrub.*
68. *Australe. Peren.*
69. *Spinosum Shrub.*
70. *Crassifolium. Shr.*
71. *Molle. Shrub.*
72. *Glaucum. Shrub.*
73. *Spectabile. Shrub.*
74. *Emarginatum. Sh.*
75. *Aureum. Shrub.*
76. *Serratum. Shrub.*
77. *Scabrum. Shrub.*
78. *Bracteatum. Shr.*
79. *Uncinatum. Shr.*
80. *Pugioniforme. Sh.*
81. *Æquilaterale. Sh.*
82. *Filamentosum. Sh.*
83. *Acinaciforme. Sh.*
84. *Forficatum. Shrub.*
85. *Edule. Shrub.*
86. *Deltoides. Shrub.*
*87. *Tricolor.*
*88. *Violaceum.*
*89. *Longistylum.*

All from the Cape, except Sp. 25. from Greece, near Athens; Sp. 36. from Egypt; Sp. 56. from Egypt and Naples; Sp. 68. from New Zealand, and Sp. 81. from New Holland. Species 5, 6, 7, seem only to be sub-species. For Sp. 87. see Willd. *Hort. Berol.* F. iii. No. xxii.

95. Aizoon. *Cal.* 5-part. *Pet.* 0. *Caps.* supera, 5-loc. 5-valv.

1. *Canariense. Ann.*
2. *Perfoliatum.*
3. *Glinoides. Shrub.*
4. *Secundum. Shrub.*
5. *Rigidum. Shrub.*
6. *Hispanicum. Ann.*
7. *Fruticosum. Shr.*
8. *Paniculatum. Shr.*
9. *Lanceolatum. Shr.*
10. *Sarmentosum. Bie.*

All from the Cape, except Sp. 1. from the Canary Islands, and Sp. 6. from Spain.

996. Spiræa. *Cal.* 5-fid. *Pet.* 5. *Caps.* polyspermæ.

1. *Lævigata.* Altaian mts. in Siberia. *Shrub.*
2. *Salicifolia.* England, Siberia, Tartary, and North America. *Shrub.*
3. *Callosa.* Japan. *Shrub.*
4. *Tomentosa.* Philadelphia. *Shrub.*
5. *Argentea.* New Granada. *Shrub.*
6. *Alpina.* Siberia at the lake Baikal. *Shrub.*
7. *Hypericifolia.* Canada. *Shrub.*
8. *Chamædrifolia.* Siberia and Hungary. *Shrub.*
9. *Ulmifolia.* Carniola and Siberia. *Shrub.*
10. *Crenata.* Siberia and Hungary. *Shrub.*
11. *Triloba.* Altaian mountains. *Shrub.*
12. *Thalictroides.* Mts. of Dauria in Siberia. *Shr.*
13. *Opulifolia.* Virginia and Canada. *Shrub.*
14. *Sorbifolia.* Siberia and Kamtschatka. *Shrub.*
15. *Aruncus.* Austria, Germ. the Pyrenees. *Per.*
16. *Filipendula.* Engl. and other pts. of Eur. *Per.*
17. *Ulmaria.* Engl. and other parts of Eur. *Per.*
18. *Digitata.* Wet parts of East Siberia. *Peren.*
19. *Lobata.* North America. *Peren.*
20. *Camtschatica.* Kamtschatka and Bhering's Island. *Peren.*
21. *Palmata.* Japan. *Peren.*
22. *Trifoliata.* Virginia.

Persoon remarks it as a singular fact, that several of the preceding species are clothed as it were with the leaves of other plants.

Polygynia.

997. Rosa. *Pet.* 5. *Cal.* urceolatus, 5-fid. carnosus, collo coarctatus. *Sem.* plurima, hispida, calycis interiori lateri affixa.

1. *Berberifolia.* North of Perthshire.
2. *Lutea,* or *Eglanteria.* Germany.
3. *Sulphurea.* In the East.
4. *Blanda.* Hudson's Bay.
5. *Cinnamomea.* South of Europe.
6. *Arvensis.* England and other parts of Eur.
7. *Pimpinellifolia.* South of Europe.
8. *Spinosissima.* England, Germany, Switzerl.
9. *Parviflora.* North America.
10. *Lucida.* North America.
11. *Carolina.* North America.
12. *Villosa.* Britain and other parts of Europe.
13. *Rugosa.* Japan.
14. *Provincialis.* Bohemia, Italy, Spain, France.
15. *Centifolia.* 16. *Gallica.* Europe.
17. *Damascena,* or *Bifera.* South of Europe.
18. *Sempervirens.* Germany.
19. *Pumila.* Austria and Italy.
20. *Turbinata.* Europe.
21. *Rubiginosa.* England and other parts of Eur.
22. *Muscosa.*
23. *Moschata.* Hedges of Barbary.
24. *Rubrifolia.* Mountains of Dauphiny, Switzerland, and Salzburg.
25. *Lagenaria.* Mts. of Dauphiny and Switzerl.
26. *Alpina.* Mountains of Switzerland.
27. *Pyrenaica.* Pyrenees, Switzerland, Silesia.
28. *Pendulina.* North America.
29. *Montana.* Mts. of Dauphiny and Switzerl.
30. *Multiflora.* Japan.
31. *Canina.* England and other parts of Europe.
32. *Collina.* Hills of Austria.
33. *Parvifolia.* Europe.
34. *Semperflorens,* or *Bengalensis.* China.
35. *Chinensis.* China. 36. *Indica.* China.
37. *Longifolia.* East Indies.
38. *Bracteata.* China.
39. *Alba.* Europe and Austria.
*40. *Kamtschatica.* Kamtschatka. (Vent. *H. Cels.*)
*41. *Setigera.* Lower Carolina. (*Michaux.*)
*42. *Sinica.* China. (*Persoon.*)
*43. *Burgundiaca,* or *Pulchella.* (*Ant. Mag.* t. 407.)
*44. *Provincialis.* Bohemia, Italy, France, and Spain. *Shrub.*
*45. *Involuta.* Scotland. *Shrub.* (*Smith.*)
*46. *Tomentosa.* England. *Shrub.* (*Smith.*)
*47. *Lævigata.* Georgia. (*Michaux.*)
*48. *Alba.* (*Flor. Dan.* t. 1215.)
*49. *Balearica.* Balearic Isles.
*50. *Turgida.* Scotland?
*51. *Arborea.* Persia.

Species 1—39 shrubby.

‡ 998. Rubus. *Cal.* 5-fid. *Pet.* 5. *Bac.* composita acinis monospermis.

1. *Rosæfolius.* Mauritius. 2. *Pinnatus.*
3. *Australis.* New Zealand.
4. *Idæus.* England and other parts of Europe.
5. *Occidentalis.* Canada. 6. *Triphyllus.* Japan.
7. *Tomentosus.* Germany and Switzerland.
8. *Hispidus.* Canada. 9. *Parvifolius.* India.
10. *Sanctus.* Candia, Guinea, and Palestine.
11. *Jamaicensis.* Jamaica.
12. *Cæsius.* England and other parts of Europe.
13. *Fruticosus.* Engl. and other parts of Europe.
14. *Villosus.* North America.
15. *Canadensis.* Canada. 16. *Odoratus.* Do.
17. *Moluccanus.* Amboyna.
18. *Microphyllus.*
19. *Incisus.*
20. *Japonicus.*
21. *Corchorifolius.*
22. *Elongatus.* Java.
23. *Pyrefolius.* Java.
24. *Pedatus.* North-west of America.
25. *Saxatilis.* Britain and other parts of Europe.

26. *Arcticus.* Isle of Mull in Scotland, Sweden, Siberia, and Canada.
27. *Trifidus.* Japan near Quana.
28. *Stellatus.* North-west of America.
29. *Geoides.* Straits of Magellan.
30. *Chamæmorus.* Engl. Sweden, Denm. Siberia.
31. *Dalibarda.* Canada.
* 32. *Apetalus.* Isle of France. *Shr.* } Poiret, *Enc.*
* 33. *Fraxinifolius.* Isle of Java. *Shr.* } vi. 242.
* 34. *Borbonicus.* Bourbon. (Bory de St Vincent.)
* 35. *Commersoni.* Java. (Poiret, *Id.*)
* 36. *Corylifolius.* Britain. (Smith, *Fl. Br.* ii. 542.)
* 37. *Hirtus.* Woods of Hungary. (*Pl. Hungar.*)
* 38. *Trivialis.* Carolina and Pennsylv. } *Michaux,*
* 39. *Strigosus.* Mountains of Pennsylvania and Canada. } i. 296-7.
* 40. *Pensylvanicus.* Pennsylv. } Poiret, *Enc.* vi.
* 41. *Roseus.* Peru. } p. 243.
* 42. *Urticifolius.* Peru. *Shr.* }
* 43. *Radicans.* St Carlos Chiloe. } *Cavan.* v. p. 7.
* 44. *Coriaceus.* Peru. }
* 45. *Obovatus.* North of Carolina.
* 46. *Acaulis.* North America. (*Michaux.*)

See the new genus DALIBARDA.

Sp. 1—24 shrubby, Sp. 25—31 perennial, Sp. 18—21 from Japan.

‡ 1001. TORMENTILLA. *Cal.* 8-fid. *Pet.* 4. *Sem.* subrotunda, nuda, receptaculo parvo exsucco affixa.

1. *Erecta.* Engl. and other parts of Eur. *Per.*
2. *Reptans.* Engl. and other pts. of Eur. *Per.*

‡ 1003. DRYAS. *Cal.* simplex 8-fid. *Pet.* 8. *Sem.* caudata, pilosa.

1. *Octopetala.* Britain and other pts. of Eur. *Per.*
* 2. *Integrifolium.* Norway. (*Herb.* of Jussieu.)

‡ 999. FRAGARIA. *Cal.* 10-fid. *Pet.* 5. *Recept.* seminum ovatum, baccatum, deciduum.

1. *Vesca.* Engl. and other parts of Eur. *Per.*
2. *Elatior.* America? *Peren.*
3. *Virginiana.* Virginia and Carolina. *Peren.*
4. *Grandiflora.* Surinam. *Peren.*
5. *Chiloensis.* South America. *Peren.*
6. *Collina.* Hills of Germany and Switzerl. *Per.*
7. *Monophylla.* *Peren.*
8. *Sterilis.* Engl. Switzerl. and Germany. *Per.*
* 9. *Bonariensis.* Monte Video. (*Herb.* of Juss.)

‡ 1000. POTENTILLA. *Cal.* 10-fid. *Pet.* 5. *Sem.* subrotunda, nuda, receptaculo parvo exsucco affixa.

1. *Fruticosa.* England and Siberia. *Shrub.*
2. *Anserina.* Engl. and other pts. of Eur. *Per.*
3. *Sericea.* Siberia. *Peren.*
4. *Multifida.* Siberia, Tartary, Cappadocia, and Switzerland. *Peren.*
5. *Verticillaris.* Siberia. *Peren.*
6. *Fragarioides.* Siberia. *Peren.*
7. *Ruthenica.* Siberia. *Peren.*
8. *Rupestris.* England, West Gothland, Siberia, and Germany. *Peren.*
9. *Bifurca.* Siberia and Armenia. *Peren.*
10. *Pimpinelloides.* Stony parts of Armenia. *Per.*
11. *Cicutariæfolia.* Gallicia. *Peren.*
12. *Pensylvanica.* Canada and Siberia. *Peren.*
13. *Supina.* Siberia, Germany, and Austria. *Ann.*
14. *Recta.* Italy, Narbonne, Switzerland, Austria, and Germany. *Peren.*
15. *Obscura.* Siberia. *Peren.*
16. *Pilosa.* South of Europe. *Peren.*
17. *Argentea.* Engl. and other parts of Eur. *Per.*
18. *Geranioides.* Armenia. *Peren.*
19. *Intermedia.* Switz. Dauphiny, Hungary. *Per.*
20. *Hirta.* Montpel. Pyrenees, and Silesia. *Per.*
21. *Inclinata.* Dauphiny. *Peren.*
22. *Stipularis.* Siberia. *Peren.*
23. *Opaca.* Austria, Switzerland, Tunis, Germany. *Peren.*
24. *Verna.* England, and other parts of Europe, also Asia. *Peren.*
25. *Aurea.* Mountains of Scotland, Switzerland, Denmark, Austria, and Silesia. *Peren.*
26. *Astracanica.* Astracan. *Peren.*
27. *Canadensis.* Canada.
28. *Alba.* Wales, Styria, Germany, and Hungary. *Peren.*
29. *Caulescens.* Alps of Switzerland, Austria, and Styria. *Peren.*
30. *Clusiana.* Alps of Austria. *Peren.*
31. *Lupinoides.* Alps of Dauphiny. *Peren.*
32. *Nitida.* Tunis and Austria. *Peren.*
33. *Valderia.* Alps of Piedmont. *Peren.*
34. *Reptans.* Engl. and other pts. of Europe. *Per.*
35. *Monspeliensis.* Montpellier. *Peren.*
36. *Norvegica.* Norway, Sweden, Prussia, Canada, and Siberia. *Ann.*
37. *Nivea.* Alps of Lapland and Siberia. *Ann.*
38. *Speciosa.* Candia. *Shrub.*
39. *Tridentata.* Greenland. *Peren.*
40. *Grandiflora.* Switzerland, Siberia, and th[illegible]he Pyrenees. *Peren.*
41. *Subacaulis.* Siberia, Fran. and Granada. *P*[illegible]*er.*
* 42. *Cinerea.* Dauphiny. } *Villars,* iii. 564.
* 43. *Rubens.* Dauphiny. }
* 44. *Pumila.* North America. } Poiret, *Enc.* [illegible]
* 45. *Caroliniana.* Carolina. } 594.
* 46. *Hirsuta.* Canada, Quebec. } *Mich.* i. p. 3[illegible]3.
* 47. *Simplex.* North America. }
* 48. *Alchemilloides.* Pyrenees. (*Lapeyrouse*[illegible])
* 49. *Splendens.* France. (*Fl. Franç.*)
* 50. *Betonicæfolia.* Siberia. (Poiret, *Id.*)
* 51. *Sterilis* or *Fragariastrum.* England and ot[illegible]her parts of Europe.
* 52. *Micrantha.* Pyrenees. (*Fl. Franç.*)
* 53. *Frigida.* Dauphiny. (*Villars.*)
* 54. *Ovata.* The Alps and Spain. (Poiret, [illegible]*d.*)

‡ 1002. GEUM. *Cal.* 10-fid. *Pet.* 5. *Sem.* ar[illegible]ista geniculata.

1. *Virginianum.* Virginia and Carolina. *Pe*[illegible]*en.*
2. *Strictum,* or *Canadense.* N. America. [illegible]*er.*
3. *Urbanum.* Engl. and other pts. of Europe. [illegible]*er.*
4. *Japonicum.* Japan. *Peren.*
5. *Rivale.* Engl. and other parts of Europe. [illegible]*er.*
6. *Pyrenaicum.* Pyrenees. *Peren.*
7. *Atlanticum.* Mt. Atlas, near Tlemsten. [illegible]*er.*
8. *Potentilloides.* Altaian Mountains. *Per*[illegible]*n.*
9. *Montanum.* Switzerland, Austria, Silesia, [illegible]nd Dauphiny. *Peren.*
10. *Reptans.* Switzerland. *Peren.*
11. *Anemonoides.* Kamschatka. *Peren.*
* 12. *Geniculatum.* Canada. } *Michaux,* i. [illegible] p.
* 13. *Radiatum.* North America. } 300.
* 14. *Involucratum.* Straits of Magellan. (*He*[illegible]*b.* of Juss.)
* 15. *Magellanicum.* Straits of Magellan. (*Per*[illegible].)

‡ 1004. COMARUM. *Cal.* 10-fid. *Pet.* 5, calyce [illegible]i-nora. *Recept.* seminum ovatum, spongiosum, p[illegible]r-sistens.

1. *Palustre.* Bogs of Europe and Asia. *Pe*[illegible]*n.*

Class XII. Icosandria.

1005. Calycanthus. *Cal.* 1-phyll. urceolatus, squarrosus, foliolis, coloratis. *Cor.* 0. *Styl.* plurimi *stigmate* glanduloso. *Sem.* plurima, caudata, intra calycem succulentum.

1. *Floridus.* Carolina. *Shrub.*
2. *Praecox.* Japan. *Shrub.*
* 3. *Ferax.* Carolina and Virginia. (*Michaux.*)

NEW GENERA.

New Genera.

Order I. Monogynia.

I. Nelitris. *Cal.* superus, 4-5 dent. *Cor.* 4-5-pet. *Bac.* 1-loc. polysperma. *Sem.* ossea: embryone inverso clavato.

1. *Jambosella.* Society Isles.

II. Stravadia. *Cal.* 4-fid. *Pet.* 4. *Drupa* oblonga, sub-4-gona, 1-sperma. (*Flores* racemosi terminales, in racemo alterni. *Fol.* alterna.)

1. *Alba.* (*Eugenia racemosa* of Willd.)
2. *Rubra.* India.

III. Caryophyllus. *Cal.* infundib. 4-fid. *Pet.* 4. *Drupa.* s. *Bacca* sicca, ovata, 1-2-loc. laciniis calycis coronata.

1. *Aromaticus.* (*Eugenia Caryophyllata.*)

IV. Calyplectus. *Cal.* inferus, plicatus, crenatus. *Pet.* 10-12. calyci insidentia. *Caps.* corticosa, 1-loc. radiatim striata, inæqualiter disrumpens. *Sem.* numerosa, alata.

1. *Acuminatus.* Groves of Peru. (*Fl. Per.* 129.)

V. Armeniaca. *Flor.* sessiles, (præcociores) ceterum *pruni.* *Drupa* (pubescens) carnosa: nuce margine altero acuto, altero obtuso, utrinque sulcato.

1. *Vulgaris.* Given under Prunus by Willd.
2. *Sibirica.* Given under Prunus by Willd.
3? *Brigantiaca.* Dauphiny. (*Villars.*)

Pentagynia.

VI. Aronia. *Cal.* 5-dent. *Pet.* 5. *Pomum—Bacca.* (Autrum) 5-10-loc. loculis 1-2-spermis. *Sem.* cartilaginea (Frutices inermes. *Flor.* corymbosi, aut racemosi).

1. *Chamæmespilus.* (*Mespilus Chamæmespilus* of Willd.)
2. *Pyrifolia.* (*a Pyrus arbutifolia* of Willd.)
3. *Arbutifolia.* (*Pyrus arbutifolia* of Willd.)
4. *Botryapium.* (*Pyrus Botryapium* of Willd.)
5. *Rotundifolia.* *Mespilus amelanchier* of Wil.)
6. *Ovalis.* (*Pyrus ovalis* of Willd.)
7. *Cretica.* (*Pyrus Cretica* of Willd.)

VII. Cydonia. *Pomum* tomentosum: loculis viscosis polyspermis. *Cal.* patens, serviatus. *Pet.* 5.

1. *Cydonia.* Portugal, &c.
2. *Japonica.* Japan. *Shrub.*

VIII. Vauquelinia. *Pet.* 5. infra calycis divisuras inserta, persistentia. *Stam.* circiter 16, ibidem inserta, persistentia. *Ovar.* superum; sericeum. *Styli* 5. *Stig.* totidem capitata. *Caps.* ovata, apice in 5 loculamenta dehiscens loculis bivalvibus, dispermis. *Sem.* ovata supra in alam membranaceam desinentia, hilo basilari affixa. (Humboldt et Bonpland *Pl. Æquinoct.* p. 140.)

1. *Corymbosa.* Warm parts of Mexico near Actopa.

Polygynia.

IX. Dalibarda. *Cal.* 5-fid. *Pet.* 5. *Bac.* sicca. *Styli* 5-8, longi, decidui.

1. *Repens.* (*Rubris Delivarda* of Willd.)
2. *Geoides.* (*Rubris Geoides* of Willd.)
3. *Fragarioides.* North America. (*Michaux.*)

REMARKS ON THE CLASS ICOSANDRIA.

Persoon is of opinion, that the genera Tetracera, Mentzelia, Loasa, and Homalium, which we have given under Polyandria, should be referred to this class.

The following plants might be expected to occur in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Tetracera *sarmentosa, tomentosa, aspera, doliocarpus, stricta, calinea, obovata nitida.* Mentzelia, Loasa. Cleome *icosandra.*

Trigynia.

Homalium.

Tetragynia.

Tetracera *Euryandra, volubilis, lævis, alnifolia.*

Polygynia.

Phytolacca *icosandra.*

CLASS XIII. POLYANDRIA.

Class XIII. Polyandria.

Monogynia.

Sect. I. *Flowers Monopetalous.*

1054. Swartzia. *Cal.* 4.-phyll. *Pet.* 1, laterale planum. *Leg.* 1-loc. bivalve. *Sem.* arillata.

1. *Simplicifolia.* Caribbee Islands. *Shrub.*
2. *Grandiflora.* Trinidad. *Shrub.*
3. *Dodecandra.* South America. *Shrub.*
4. *Triphylla.* Guiana and Cayenne. *Shrub.*

5. *Pinnata.* Trinidad. *Shrub.*
6. *Alata.* Woods of Guiana. *Shrub.*

1006. MARCGRAVIA. *Cor.* 1. pet. calyptriformis. *Cal.* 6-phyll. imbricatus. *Bac.* multiloc. polysperma.
1. *Umbellata.* Warm mts. of America. *Shr.*
2. *Coriacea.* Cayenne. *Shrub.*

1007. TERNSTROEMIA. *Cor.* 1-pet. rotata, limbo campan. 5 seu 6-part. *Cal.* 5-part. *Anth.* apice crassæ: *Bac.* exsucca bilocularis.
1. *Meridionalis.* Jamaica, N. Granada. *Shrub.*
2. *Elliptica.* West Indies. *Shrub.*
3. *Punctata.* Woods of Guiana. *Shrub.*
4. *Japonica.* Japan. *Shrub.*
5. *Dentata.* Woods of Guiana. *Shrub.*
*6. *Globifera.* Andes. } *Flor. Peruv.*
*7. *Quinquepartita.* Andes. } p. 79.
See Persoon's *Synopsis*, ii. p. 73.

SECT. II. *Flowers with three Petals.*

1008. TRILIX. *Cor.* 3-pet. *Cal.* 3-phyll. *Bac.* 5-loc. polysperma.
1. *Lutea.* Carthagena. *Shrub.*

SECT. III. *Flowers with four Petals.*

1023. MAMMEA. *Cor.* 4-pet. *Cal.* 2-phyll. *Bac.* maxima, 4-sperma.
1. *Americana.* Hispaniola, Jamaica. *Shrub.*
2. *Humilis.* Island of Mount Serrat. *Shrub.*

‡ 1015. PAPAVER. *Cor.* 4-pet. *Cal.* 2-phyll. *Caps.* 1-loc. sub stigmate persistente poris dehiscens.
1. *Hybridum.* Engl. and S. of Europe. *Ann.*
2. *Argemone.* Engl. and other pts. of Eur. *Ann.*
3. *Alpinum.* Switz. Austria, Pyrenees. *Per.*
4. *Nudicaule.* Siberia. *Bien.*
5. *Rhoeas.* Europe. *Ann.*
6. *Dubium.* Europe. *Ann.*
7. *Somniferum.* Europe. *Ann.*
8. *Cambricum.* Cambray and Pyrenees. *Per.*
9. *Orientale.* In the East. *Peren.*
*10. *Obtusifolium.* Barbary. (*Desfont.*)
*11. *Fugax.* Persia. (Poir. *Enc.* 5. 118.)

‡ 1014. CHELIDONIUM. *Cor.* 4-pet. *Cal.* 2-phyll. *Siliqua* 1-loc. linearis.
1. *Majus.* Engl. and other pts. of Europe. *Per.*
2. *Japonicum.* Japan.
3. *Glaucium.* England, Switzerland, France, Italy, and Virginia. *Per.*
4. *Corniculatum.* Germany and France. *Ann.*
5. *Hybridum.* South of Europe. *Ann.*
*6. *Diphyllum.* America. (*Michaux.*)
See the new genus GLAUCIUM.

1027. SPARRMANNIA. *Cal.* 4-phyll. *Cor.* 4-pet. reflexa. *Nect.* plura torulosa. *Caps.* angulata 5-loc. echinata.
1. *Africana.* Cape of Good Hope. *Shrub.*

1010. CAPPARIS. *Cal.* 4-phyll. coriaceus. *Pet.* 4. *Stam.* longa. *Bac.* corticosa 1-loc. pedunculata.
1. *Spinosa.* South of Europe and the East.
2. *Ovata.* Sicily, Spain, and N. of Africa.
3. *Ægyptia.* Egypt. 4. *Tomentosa.* Senegal.
5. *Acuminata.* East Indies.
6. *Zeylanica.* Ceylon.
7. *Horrida.* Coromandel.
8. *Erythrocarpos.* Guinea.
9. *Sepiaria.* India.
10. *Citrifolia.* Cape of Good Hope.
11. *Corymbosa.* Senegal.
12. *Mariana.* Marianne Islands.
13. *Panduriformis.* Mauritius.
14. *Baducca.* East Indies.
15. *Torulosa.* Jamaica.
16. *Longifolia.* Jamaica.
17. *Frondosa.* Carthagena and Domingo.
18. *Ferruginea.* Jamaica.
19. *Grandis.* Ceylon.
20. *Jamaicensis.* Jamaica.
21. *Odoratissima.* Caraccas.
22. *Verrucosa.* Woods of Carthagena.
23. *Amplissima.* Hispaniola.
24. *Cynophallophora.* South America.
25. *Saligna.* Santa Cruz.
26. *Pulcherrima.* Carthagena.
27. *Tenuisiliqua.* Carthagena.
28. *Linearis.* Carthagena.
29. *Breynia.* Jamaica, towards the sea.
30. *Hastata.* Carthagena.
*31. *Pyrifolia.* East Indies. } Lam. *Enc.* 606.
*32. *Divaricata.* East Indies. }
*33. *Linearis.* Carthagena. (Jacq. *Amer.*)
Sp. 1—30, 33. shrubby.

‡ 1011. ACTÆA. *Cor.* 4-pet. *Cal.* 4-phyll. *Bac.* 1-loc. *Sem.* semiorbiculata.
1. *Spicata.* Engl. Europe, and America. *Per.*
2. *Racemosa.* Florida, Virginia, Canada. *Per.*
3. *Japonica.* Japan. *Shrub.*

1026. CALOPHYLLUM. *Cor.* 4-pet. *Cal.* 4-phyll. coloratus. *Drupa* globosa.
1. *Inophyllum.* India. *Shrub.*
2. *Calaba.* East and West Indies. *Shrub.*
*3. *Acuminatum.* Molucca Isles. *Shrub.*

1025. GRIAS. *Cor.* 4-pet. *Cal.* 4-fid. *Stig.* sessile, cruciatum. *Drupa* nucleo octosulcato.
1. *Cauliflora.* Jamaica. *Shrub.*

SECT. IV. *Flowers with five Petals.*

1044. STERBECKIA, or SINGANA. *Cal.* 3 seu 5-phyll. *Cor.* 3 seu 5-pet. *Caps.* corticosa non dehiscens leguminiformis polysperma. *Sem.* imbricata in pulpa nidulantia.
1. *Lateriflora.* Woods of Guiana. *Shrub.*

1043. LOASA. *Cor.* 5-pet. *Cal.* 5-phyll. *Caps.* semiinfera, 1-loc. semitrivalvis, polysperma.
1. *Hispida*, or *ambrosiæfolia.* Peru. *Ann.*
2. *Contorta.* Peru.
3. *Acanthifolia.* Chili.
4. *Grandiflora.* Peru.
5. *Chenopodifolia.* Peru.
6. *Nitida.* Rocks at Lima. *Ann.*
*7. *Ranunculifolia.* Peruv. Andes near Coxamarca.
*8. *Argemonoides.* Near St Fe in South America.
*9. *Triloba.* Peru. }
*10. *Acerifolia.* Chilao. } See Juss. *Ann.*
*11. *Sclareæfolia.* Chilao. } *Mus.* cap. 25. p.
*12. *Xanthiifolia.* Peru. } 24. t. 1. f. 3.
*13. *Volubilis.* Chili. }
*14. *Triphylla.* Peru. }
For an account of Sp. 7, 8, see Humboldt et Bonpland, *Plant. Æquinoct.*

1042. MENTZELIA. *Cor.* 5-pet. *Cal.* 5-phyll. *Caps.* infera, cylindrica, polysperma.
1. *Aspera.* America.
2. *Hispida.* Mexico. *Peren.*

1049. VALLEA. *Cal.* 3 seu 4-phyll. *Pet.* 4. seu 3-fida. *Stig.* 4 seu 5-fidum. *Caps.* 2-loc. polysperma.

1. *Stipularis,* or *cordifolia.* New Granada. *Shr.*

1050. Bonnetia. *Cal.* 5-phyll. *Cor.* 5-pet. *Caps.* 3-loc. 3-valv. polysperma.
1. *Palustris.* Cayenne and Guiana. *Shrub.*

1036. Legnotis. *Cal.* 5-fid. *Cor.* 5-pet. receptaculo inserta lacera. *Caps.* 3-loc.
1. *Elliptica.* Jamaica. *Shrub.*
2. *Cassipourea.* Guiana. *Shrub.*

1046. Freziera, (or Eroteum of Persoon.) *Cal.* 5-phyll. *Cor.* 5-pet. *Styl.* 3-fidus. *Bac.* exsucca 3-loc. polysperma.
1. *Theæoides.* Jamaica. *Shrub.*
2. *Undulata.* West Indies. *Shrub.*
*3. *Reticulata.* Near Almaguer in the Peruvian Andes.
*4. *Canescens.* In the Peruvian Andes, between Quito and Ybarra.
*5. *Chrysophylla.* Cold parts of the Peruvian Andes, near Popayan.
*6. *Sericea.* Cold parts of the province of Pasto, between Quito and Popayan.
*7. *Nervosa.* Cold parts of the province of Pasto. *Shrub.*

All the species of Freziera are natives of the Peruvian Andes and the Antilles. The five last species have been newly discovered by Humboldt and Bonpland.

O34. Marila. *Cal.* 5-phyll. *Cor.* 5-pet. *Stig.* simplex. *Caps.* 4-loc. polysperma.
1. *Racemosa.* Montserrat. *Shrub.*

1048. Cistus. *Cor.* 5-pet. *Cal.* 5-phyll. foliolis 2-minoribus. *Caps.*
1. *Capensis.* Cape of Good Hope.
2. *Villosus.* Italy, Spain, and North Africa.
3. *Populifolius.* Portugal and Spain.
4. *Laurifolius.* Spain.
5. *Vaginatus.* Teneriffe.
6. *Ledon.* South of France.
7. *Ladaniferus.* Spain and Portugal.
8. *Monspeliensis.* France and Valentia.
9. *Laxus.* Spain and Portugal.
10. *Salvifolius.* Italy, Sicily, Switz. France.
11. *Heterophyllus.* About Algiers.
12. *Incanus.* Spain and south of France.
13. *Creticus.* Candia and Syria.
14. *Parviflorus.* Candia.
15. *Albidus.* Spain. 16. *Sericeus.* Spain.
17. *Hybridus.* Spain. 18. *Crispus.* Portugal.
19. *Formosus.* Portugal.
20. *Halimifolius.* Portugal and Spain.
21. *Elongatus.* Spain. 22. *Libanotus.* Spain.
23. *Umbellatus.* France and Spain.
24. *Lævipes.* Montpellier.
25. *Calycinus.* South of Europe.
26. *Fumana.* France, Sweden, Switzerland.
27. *Canus.* Spain and France.
28. *Scabrosus.* Italy and Portugal.
29. *Cinereus.* Spain. 30. *Ocymoides.* Spain.
31. *Italicus.* Italy.
32. *Marifolius.* England, France, Spain, &c.
33. *Origanifolius.* Spain. 34. *Mollis.* Spain.
35. *Dichotomus.* Spain.
36. *Anglicus.* England.
37. *Vinealis.* Germany and Switzerland.
38. *Oelandicus.* France, Switzerland, Austria.
39. *Alternifolius.* Brasil.

Sp. 1—39. shrubby.

40. *Globularifolius.* Portugal. *Peren.*
41. *Tuberaria.* Provence, Spain, Pisa. *Peren.*
42. *Plantagineus.* Candia and north of Afr. *Ann.*
43. *Serratus.* Spain. *Ann.*
44. *Guttatus.* England, France, and Italy. *Ann.*
45. *Canadensis.* Canada. *Peren.*
46. *Punctatus.* *Ann.*
47. *Ledifolius.* England and Montpellier. *Ann.*
48. *Salicifolius.* Portugal and Spain. *Ann.*
49. *Niloticus.* Egypt. *Ann.*
50. *Ægyptiacus.* Egypt. *Ann.*
51. *Squamatus.* Spain, on dry hills.
52. *Lippii.* Egypt. 53. *Sessiliflorus.* Africa.
54. *Ellipticus.* Algiers. 55. *Surrejanus.* Engl.
56. *Polyanthos.* Afr. 57. *Glaucus.* Spain.
58. *Nummularius.* Montpellier, Spain, Africa.
59. *Canariensis.* The Canaries.
60. *Serpillifolius.* South of Europe.
61. *Violaceus.* Spain. 62. *Linearis.* Spain.
63. *Lævis.* Hills of Spain.
64. *Strictus.* Spain.
65. *Glutinosus.* South of Europe.
66. *Thymifolius.* Spain. 67. *Pilosus.* France.
68. *Lavandulifolius.* Spain, France, Tunis, Syria.
69. *Racemosus.* Spain.
70. *Ciliatus.* Sandy parts north of Africa.
71. *Angustifolius.* 72. *Helianthemum.* Engl. &c.
73. *Mutabilis.* 74. *Fœtidus.*
75. *Croceus.* Spain. 76. *Hirtus.* Spain, Africa.
77. *Apenninus.* On the Appenines.
78. *Polifolius.* England.
79. *Arabicus.* Arabia.

Sp. 51—79 shrubby.

*80. *Longifolius.* Spain.
*81. *Complicatus.* In the East.
*82. *Purpureus.*
} See Lamarck, *Encyc.* ii. p. 16.

Under this genus Persoon comprehends only Sp. 1—16, 18, 19, 80—82. The rest are given under the new genus Helianthemum.

1038. Lemnescia. *Cal.* 5-dent. *Cor.* 5-pet. *Nect.* cyathiforme staminiferum. *Caps?* 5-loc. loculis 1-spermis.
1. *Floribunda.* Guiana. *Shrub.*

1037. Myrodendrum, or Humiria. *Cal.* 5-dent. *Cor.* 5-pet. *Stig.* 5-lobum. *Pericarp.* 5-loc. loculis 1-spermis.
1. *Amplexicaule.* Cayenne and Guiana. *Shrub.*

1052. Corchorus. *Cor.* 5-pet. *Cal.* 5-phyll. deciduus. *Caps.* plurivalvis, loculamentosa.
1. *Olitorius.* Asia, Africa, and America *Ann.*
2. *Trilocularis.* Arabia. *Ann.*
3. *Tridens.* India. *Ann.*
4. *Æstuans.* Warm parts of America.
5. *Acutangulus.* East Indies. *Shrub.*
6. *Fascicularis.* East Indies. *Shrub.*
7. *Capsularis.* India. *Shrub.*
8. *Scandens.* Japan. *Ann.*
9. *Serratus.* Japan.
10. *Hirsutus.* South America. *Shrub.*
11. *Japonicus.* Japan. *Shrub.*
12. *Flexuosus.* Japan.
13. *Hirtus.* South America.
14. *Siliquosus.* South America. *Peren.*

1018. Sarracenia. *Cor.* 5-pet. *Cal.* duplex, 3 et 5-phyll. *Caps.* 5-loc. *Styl.* stigmate clypeatus.
1. *Flava.* North America. *Peren.*
2. *Minor.* Wet parts of Carolina. *Peren.*
3. *Rubra.* Wet parts of Carolina. *Peren.*
4. *Purpurea.* North America. *Peren.*

Class XIII. Polyandria.

Class XIII. Polyandria.

* 5? *Variolaris*. From Carolina to Florida. } *Mich.*
* 6? *Psittacina*. Georgia to Florida. } i.p.310.

‡ 1028. Tilia. *Cor.* 5-pet. *Cal.* 5-part. *Caps.* coriacea globosa, 5-loc. 5 valv. basi dehiscens, 1-sperma.
1. *Europæa*. Engl. and other pts. of Europe. *Shr.*
2. *Americana*. Virginia and Canada. *Shrub.*
3. *Pubescens*. Carolina. *Shrub.*
4. *Alba*. Hungary. *Shrub.*
* 5. *Canadensis*. Mts. of Canada and Carol. } *Mich.*
* 6. *Laxiflora*. Coasts of Carol. and Virgin. } i. 306.

1022. Aubletia, or Apeiba of Persoon. *Cal.* 5-phyll. *Cor.* 5-pet. *Caps.* echinata multiloc.
1. *Tibourbou*. Hills of Guiana and Cayenne. *Shr.*
2. *Petoumo*. Woods of Guiana. *Shrub.*
3. *Aspera*. Cayenne. *Shrub.*
4. *Lævis*. Cayenne. *Shrub.*

1024. Ochna. *Cor.* 5 pet. *Cal.* 5-phyll. *Baccæ* 1-spermæ, receptaculo subrotundo magno affixæ.
1. *Squarrosa*. India and Africa. *Shrub.*
2. *Parvifolia*. Arabia Felix. *Shrub.*

1039. Ascium. *Cal.* 5-phyll. *Cor.* 5-pet. *Bac.* 4-loc. loculis dispermis.
1. *Violaceum*. Guiana and Trinidad. *Shrub.*

1031. Grewia. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* squamæ 5. *Drupa.* 4-loba 4-loc. *Nuse.* 1-2-sperma.
1. *Occidentalis*. Cape of Good Hope. *Shrub.*
2. *Populifolia*. Arabia Felix. *Shrub.*
3. *Orientalis*. East Indies. *Shrub.*
4. *Mallococca*. Island of Tongataboo. *Shrub.*
5. *Lævigata*. East Indies. *Shrub.*
6. *Glandulosa*. Mauritius. *Shrub.*
7. *Hirsuta*. East Indies. *Shrub.*
8. *Excelsa*. Arabia Felix. *Shrub.*
9. *Asiatica*. Surat. *Shrub.*
10. *Teliæfolia*. East Indies. *Shrub.*
11. *Velutina*. Arabia Felix. *Shrub.*
* 12. *Apetala*. Java.
* 13. *Multiflora*. Philippine Isles.
* 14. *Guazumæfolia*. Java. * 15. *Tomentosa*. Java.
* 16. *Celtidifolia*. Java. * 17. *Verrucosa*. Java.
* 18. *Microcos*. (*Microcos paniculata* of Willd.)
* 19. *Bicolor*. Senegal.
* 20. *Cuneifolia*. Madagascar.
* 21. *Nitida*. China. * 22. *Oralifolia*. Coromandel.
* 23. *Pilosa*. India.
* 24. *Flavescens*. East Indies.
* 25. *Mollis*. Senegal and Oware.
* 26. *Acuminata*. Java.
* 27. *Carpinifolia*. Guinea and Oware.
* 28. *Megalocarpa*. Oware.
* 29. *Obliqua*. East Indies. *Shrub.*
* 30. *Rotundifolia*. Coromandel. * 31. *Arbutifolia*.

See Jussieu, *Mem. Sur le Grewia* in *Annal du Mus.* Fasc. xx. p. 93.

1017. Muntingia. *Cor.* 5-pet. *Cal.* 5-part. *Bac.* 5-loc. 1-polysperma.
1. *Calabura*. Hills of Jamaica. *Shrub.*

1035. Elæocarpus. *Cor.* 5-pet. lacera. *Anth.* apice 2-valvi. *Cal.* 5-phyll. *Drupa* nucleo crispo.
1. *Serratus*. India. *Shrub.*
2. *Dentatus*. New Zealand. *Shrub.*
3. *Dicera*. New Zealand. *Shrub.*
4. *Integrifolius*. Mauritius. *Shrub.*
5. *Copalliferus*. Ceylon. *Shrub.*
* 6. *Monocerus*. Isle of Luzon. (*Cavan.*)

1033. Microcos. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* 0. *Drupa* nuce 3-loc.
1. *Paniculata*. East Indies. *Shrub.*

This plant is given by Persoon under Grewia.

Sect. V. *Flowers with six Petals.*

1016. Argemone. *Cor.* 6-pet. *Cal.* 3-phyll. *Caps.* semivalvis.
1. *Mexicana*. Mexico, Jamaica, Caribbees.
2. *Armeniaca*. Armenia. *Ann.*
3. *Pyrenaica*. Pyrenees.

1045. Lagerstroemia. *Cor.* 6-pet. *Cal.* 6-fid. campan. *Stam.* multa: horum 6 exteriora crassiora. *Caps.* 4 seu 6 loc. polysperma.
1. *Indica*. China, Cochinchina, and Japan. *Shr.*
2. *Reginæ*. Woods of Calcutta and Java. *Shr.*
3. *Hirsuta*. Malabar. *Shrub.*
4. *Munchhausia*, or *Speciosa*. China. *Shrub.*
5. *Parviflora*. Mountains of India. *Shrub.*

1041. Alangium. *Cal.* 6 seu 10-dent. superus. *Cor.* 6 seu 10-pet. *Bac.* corticosa 2-3-sperma.
1. *Decapetalum*. East Indies. *Shrub.*
2. *Hexapetalum*. East Indies. *Shrub.*

1047. Thea. *Cor.* 6 seu 9-pet. *Cal.* 5 seu 6-phyll. *Caps.* 3-cocca.
1. *Bohea*. China. *Shrub.*
2. *Viridis*. China. *Shrub.*

According to Lettsom, these species are only varieties. *Nat. Hist. of the Tea Trees.* Lond. 1772.

1040. Lecythis. *Cor.* 6-pet. *Cal.* 6-phyll. *Nect.* lingulatum, staminiferum. *Pericarp.* circumscissum, polyspermum.
1. *Ollaria*. Brasil and Cumana. *Shrub.*
2. *Minor*. Woods of Carthagena. *Shrub.*
3. *Grandiflora*. Woods of Guiana. *Shrub.*
4. *Amara*. Woods of Guiana. *Shrub.*
5. *Zabucajo*. Woods of Guiana. *Shrub.*
6. *Idatimon*. Cayenne. *Shrub.*
7. *Parviflora*. Banks of rivers. Guiana. *Shr.*
8. *Bracteata*. Cayenne. *Shrub.*
* 9. *Lanceolata*. Madagascar. (*Enc. Bot.*)

Sect. VI. *Flowers with eight Petals.*

1012. Sanguinaria. *Cor.* 8-pet. *Cal.* 2-phyll. *Siliqua* ovata, 1-loc.
1. *Canadensis*. North America. *Peren.*

Sect. VII. *Flowers with nine Petals.*

1013. Podophyllum. *Cor.* 9-pet. *Cal.* 3-p[illegible] *Bac.* 1-loc. coronata stigmate.
1. *Peltatum*. North America. *Peren.*
2. *Diphyllum*. Virginia. *Peren.*

Sect. VIII. *Flowers with ten Petals.*

1020. Bixa. *Cor.* 10. pet. *Cal.* 5-dent. [illegible] hispida, bivalvis.
1. *Orellana*. Warm parts of America. *Sh[illegible]b.*

Sect. IX. *Flowers with many Petals.*

‡ 1019. Nymphæa. *Cor.* polypet. *Cal.* 4 seu 5-phyll. *Bac.* multiloc. loculis polyspermis.

1. *Lutea.* Engl. and other parts of Eur. *Per.*
2. *Advena.* North America. *Peren.*
3. *Alba.* Engl. and other parts of Eur. *Per.*
4. *Odorata.* North America and Siberia. *Per.*
5. *Stellata.* Malabar in watery places. *Per.*
6. *Lotus.* India, Egypt, and Hungary. *Per.*
7. *Pubescens.* East Indies. *Peren.*
*8. *Sagittata.* Carolina. (*Walter.*)
*9. *Cœrulea.* Egypt. (*Andrews.*)
*10? *Microphylla.* Canada. (*Michaux.*)

Sect. X. *Flowers without Petals.*

1051. Prockia. *Cal.* 3-phyll. præter foliola 2 baseos. *Cor.* 0. *Bac.* 5-angularis, polysperma.
1. *Crucis.* Santa Cruz. *Shrub.*
2. *Serrata.* Montserrat. *Shrub.*
3. *Theæformis.* Bourbon. *Shrub.*
4. *Integrifolia.* Mauritius. *Shrub.*
*5. *Ovata.* Isle of France.
*6? *Laciniata.* Isle of Bourbon.
*7. *Lobata.*
} Poiret, *Encyc.* v. p. 526.

1032. Mærua. *Cal.* 4-fid. tubo nectarifero. *Cor.* 0. *Stig.* sessile. *Drupa?*
1. *Uniflora.* Arabia Felix.
2. *Racemosa.* Arabia Felix. *Shrub.*

1009. Ludia. *Cal.* 4-7-part. *Cor.* 0. *Styl.* 3-4-fid. *Bac.* sicca 1-loc. polysperma.
1. *Heterophylla.* Mauritius. *Shrub.*
2. *Myrtifolia.* Bourbon. *Shrub.*
3. *Sessiliflora.* Mauritius. *Shrub.*

021. Sloanea. *Cor.* 0. *Cal.* 1-phyll. 5-9-fid. *Anth.* filamentis infra apicem adnatæ. *Caps.* echinata 3-6-loc. 3-6-valv. *Sem.* 2 arillo baccato.
1. *Dentata.* South America. *Shrub.*
2. *Massoni.* Caribbees. *Shrub.*
3. *Sinemariensis.* Caribbees and Woods of Guiana. *Shrub.*

1030. Ryania, or (Patrisia of Persoon). *Cal.* 5-phyll. persistens, coloratus. *Cor.* 0. *Stig.* 4. *Bac.* suberosa 1-loc. polysperma.
1. *Speciosa* or *Pyrifera.* Trinidad. *Shrub.*

1029. Lætia. *Cor.* 5-pet. seu. 0. *Cal.* 5-phyll. *Fruct.* 1-loc. 3-gonus. *Sem.* arillo pulposo.
1. *Apetala.* America. *Shrub.*
2. *Guidonia.* Jamaica. *Shrub.*
3. *Thamnia.* Jamaica. *Shrub.*
4. *Completa.* America. *Shrub.*

1053. Seguieria. *Cal.* 5-phyll. *Cor.* 0. *Caps.* 1-sperma: ala magna terminata, alulisque lateralibus.
1. *Americana.* South America. *Shrub.*

Order II. Digynia.

1057. Fothergilla. *Cal.* truncatus, integerrimus. *Cor.* 0. *Germ.* bifidum. *Caps.* 2-loc. *Sem.* solitaria, ossea.
1. *Alnifolia.* Carolina. *Shrub.*

1056. Curatella. *Cal.* 5-phyll. *Pet.* 4. *Styli* 2. *Caps.* 2 part. locul. dispermis.
1. *Americana.* South America. *Shrub.*

1055. Pæonia. *Cal.* 5-phyll. *Pet.* 5. *Styli* 0. *Caps.* polyspermæ.
1. *Officinalis.* Mount Ida and Switzerland. *Shr.*
2. *Corallina.* South of Europe and Siberia. *Per.*
3. *Albiflora.* Siberia. *Peren.*
4. *Humilis.* Spain. *Peren.*
5. *Anomala.* Siberia. *Peren.*
6. *Hybrida* *Peren.*
7. *Tenuifolia.* The Ukraine and Siberia. *Peren.*

1058. Trichocarpus. *Cal.* 4 seu 5-part. *Cor.* 0. *Styl.* 2-bifidi. *Caps.* setosa 1-loc. 4-valv. polysperma.
1. *Laurifolia.* Woods of Guiana. *Shrub.*

1059. Lacis. *Cal.* 0. *Cor.* 0. *Styli* 2. *Caps.* 1-loc. bivalvis polysperma.
1. *Fluviatilis.* Woods of Guiana. *Peren.*

Order III. Trigynia.

‡ 1061. Delphinium. *Cal.* 0. *Pet.* 5. *Nect.* bifidum, postice cornutum. *Siliquæ* 3 seu 1.
1. *Consolida.* Engl. and other parts of Eur. *Ann.*
2. *Ajacis.* Switzerland. *Ann.*
3. *Aconiti.* Dardanelles. *Ann.*
4. *Ambiguum.* Barbary. *Ann.*
5. *Peregrinum.* Italy, Sicily, Malta, Palestine. *An.*
6. *Grandiflorum.* Siberia. *Peren.*
7. *Intermedium.* Mountains of Siberia. *Peren.*
8. *Elatum.* Siberia and Switzerland. *Peren.*
9. *Hybridum,* or *hirsutum.* Siberia. *Peren.*
10. *Exaltatum.* North America. *Peren.*
11. *Urceolatum.* 12. *Puniceum.* Siberia. *Per.*
13. *Staphisagria.* Istria, Dalmatia, France, Italy, and Candia. *Bien.*
14. *Pentagynum.* Algiers and Portugal. *Ann.*
*15. *Azureum.* Georgia.
*16. *Tridactylum.* Mts. of Virgin. Carol.
*17. *Tricorne.* High mts. of Carolina.
} *Mich.* i. p. 317.
*18. *Fissum.* Hungary. (*Pl. Hung.*)

1062. Aconitum. *Cal.* 0. *Pet.* 5, supremo fornicato, *Nect.* 2, pedunculata, recurva. *Siliquæ* 3 seu 5.
1. *Lycoctonum.* France, Switz, Austria. *Peren.*
2. *Japonicum.* Japan. *Peren.*
3. *Pyrenaicum.* Siberia, Tartary, Pyrenees. *Per.*
4. *Ochroleucum.* Siberia at Caucasus. *Peren.*
5. *Anthora.* Pyrenees, Switzerland, &c. *Per.*
6. *Album.* In the East. *Peren.*
7. *Septentrionale.* Norway, Sweden, Russia. *Per.*
8. *Napellus.* Switzerland, Sweden, Siberia. *Per.*
9. *Neomontanum.* Carinthia and Carniola. *Peren.*
10. *Tauricum.* Hungary. *Peren.*
11. *Volubile.* Siberia. *Peren.*
12. *Cernuum.* Germany. *Peren.*
13. *Variegatum.* Italy and Bohemia. *Peren.*
14. *Cammarum.* Styria. *Peren.*
15. *Uncinatum.* At Philadelphia. *Peren.*
*16. *Barbatum.* Siberia. (*Herb.* of Jussieu.)

1060. Homalium. *Cal.* 6-7-part. *Cor.* 6-7-pet. *Stam.* 21 per tria aggregata. *Caps.* uniloc. polysperma.
1. *Racemosum.* Martinique and Jamaica. *Shr.*
2. *Racoubea.* Woods of Guiana. *Shrub.*
*3. *Incanum.* Peru. (*Fl. Per.* i. 133.)

Sp. 3. is given by Persoon under the subgenus Pineda.

Order IV. Tetragynia.

1063. Wintera. *Cal.* 3-lobus. *Pet.* 6 seu 12. *Germ.* clavata. *Styl.* 0. *Bac.* 4 seu 8-obovatæ.
1. *Aromatica.* Straits of Magellan. *Shrub.*
2. *Granadensis.* New Granada. (See Humboldt, *Pl. Equinoct.*) *Shrub.*
3. *Axillaris.* Woody parts New Zealand. *Shrub.*

1067. CIMICIFUGA. *Cal.* 4-phyll. *Cor.* nectariis 4, urceolatis. *Caps.* 4. *Sem.* squamosa.
1. *Fœtida.* Siberia, (sometimes 6 *Pist.*) *Peren.*
* 2. *Palmata.* Carolina, (above 12 *Pist.*) (*Mich.*)
1066. WAHLBOMIA. *Cal.* 4-phyll. *Cor.* 4-pet. *Fruct.* oblongus. *Styli.* persistentes.
1. *Indica.* Java. *Shrub.*
1064. TETRACERA. *Cal.* 5 seu 6-phyll. *Cor.* 4 seu 5-pet. *Fil.* superne dilatata utrinque antherifera. *Caps.* 4 latere dehiscentes. *Sem.* basi arillatum.
1. *Sarmentosa.* Ceylon. *Shrub.*
2. *Tomentosa.* Wds. of Guiana and Cayenne. *Shr.*
3. *Aspera.* Woods of Guiana and Cayenne. *Shr.*
4. *Doliocarpus.* Surinam. *Shrub.*
5. *Stricta.* Surinam. *Shrub.*
6. *Calinea.* Woods of Guiana. *Shrub.*
7. *Obvata.* Guiana at the R. Sinemari. *Shrub.*
8. *Nitida.* Trinidad. *Shrub.*
9. *Euryandra.* New Caledonia. *Shrub.*
10. *Volubilis.* South America. *Shrub.*
11. *Lævis.* East Indies. *Shrub.*
12. *Alnifolia.* Guinea. *Shrub.*
1065. CARYOCAR. *Cal.* 5-part. *Pet.* 5. *Styli* sæpius 4. *Drupa* nucleis 4 sulcis reticulatis.
1. *Nuciferum.* Berbice and Essequibo. *Shrub.*
2. *Butyrosum.* Woods of Guiana. *Shrub.*
3. *Tomentosum.* Woods of Guiana. *Shrub.*
* 4. *Glabra.* Cayenne and Guiana. *Shr.* } Aublet,
* 5. *Villosa.* Cayenne and Guiana. *Shr.* } *Guian.*

ORDER V. PENTAGYNIA.

‡ 1068. AQUILEGIA. *Cal.* 0. *Pet.* 5. *Nect.* 5, corniculata, inter petala. *Caps.* 5, distinctæ.
1. *Viscosa.* Montpellier. *Peren.*
2. *Vulgaris.* Engl. and other pts. of Eur. *Peren.*
3. *Alpina.* Switzerland. *Bien.*
4. *Canadensis.* Virginia and Canada. *Peren.*
5. *Viridiflora.* Siberia. *Peren.*
* 6. *Bicolor.* Siberia. (*H. Kew.* ii. 247.)
1069. NIGELLA. *Cal.* 0. *Pet.* 5. *Nect.* 5. 3-fida, intra corollam. *Caps.* 5, convexæ.
1. *Damascena.* South of Europe. *Ann.*
2. *Sativa.* Germany, Egypt, Candia. *Ann.*
3. *Arvensis.* Germany, France, and Italy. *Ann.*
4. *Hispanica.* Spain and Montpellier. *Ann.*
5. *Orientalis.* About Aleppo. *Ann.*
1070. REAUMURIA. *Cal.* 5-phyll. *Pet.* 5. *Caps.* 5-loc. 5-valv. polysperma. *Sem.* lanata.
1. *Vermiculata.* Egypt, Syria, Sicily. *Ann.*
2. *Hypericoides.* Deserts of Syria. *Peren.*

POLYGYNIA.

1091. HYDRASTIS. *Cal.* 0. *Pet.* 3. *Nect.* 0. *Bac.* composita acinis 1-spermis.
1. *Canadensis.* Wet parts of Canada. *Peren.*
1082. ATRAGENE. *Cal.* 0. *Cor.* duplex, petalis numerosis, exterioribus majoribus. *Sem.* caudata.
1. *Alpina.* Tunis, Austria, and Siberia. *Shrub.*
2. *Ochotensis.* Siberia. *Shrub.*
3. *Japonica.* Japan. *Peren.* *Shrub.*
4. *Capensis.* Cape of Good Hope. *Per.* *Shr.*
5. *Tenuifolia.* Cape of Good Hope.
6. *Zeylanica.* Ceylon. *Shrub.*
* 7. *Austriaca.* Austria. (*Andrews.*)

Persoon
CLEMATIS, and Sp.
VIORNA.
‡ 1083. CLEMATIS. *Cal.* 0. *Pet.* 4, rarius 5. *Sem.* caudata.
1. *Cirrhosa.* Spain and Barbary. *Shrub.*
2. *Florida.* Japan. *Shrub.*
3. *Viticella.* Italy and Spain. *Shrub.*
4. *Viorna.* Virginia and Carolina. *Shrub.*
5. *Crispa.* Carolina. *Shrub.*
6. *Calycina.* Minorca. *Shrub.*
7. *Orientalis.* In the East. *Shrub.*
8. *Glauca.* Siberia and in the East. *Shrub.*
9. *Hexapetala.* New Zealand. *Shrub.*
10. *Triflora.* Bourbon. *Shrub.*
11. *Virginiana.* North America. *Shrub.*
12. *Japonica.* Japan. *Shrub.*
13. *Trifoliata.* Japan. *Shrub.*
14. *Dioica.* Warm parts of America. *Shrub.*
15. *Indivisa.* New Zealand. *Shrub.*
16. *Paniculata.* Japan. *Shrub.*
17. *Vitalba.* Engl. and other pts. of Eur. *Shrub.*
18. *Chinensis.* China. *Shrub.*
19. *Flammula.* Montpellier. *Peren.* *Shrub.*
20. *Maritima.* At the Adriatic Sea, Venice, and [illegible]d Montpellier. *Peren.* *Shrub.*
21. *Angustifolia.* Siberia and Austria. *Peren.*
22. *Erecta.* Austria, Tartary, Montpellier, and [illegible]d Switzerland. *Peren.*
23. *Ochroleuca.* North America. *Peren.*
24. *Integrifolia.* Hungary and Tartary. *Peren.*
* 25. *Reticulata.* Georgia. (*Michaux.*)
* 26. *Campaniflora.* Beira in Portugal. (*Brotero.*)
* 27. *Mauritiana.* Bourbon. (*Lamarck.*)
* 28. *Balearica.* Minorca. (*Herb.* of Juss.)
* 29. *Guadeloupæ.* Guadaloupe. (*Herb.* of Lam.)
* 30. *Daurica.* Siberia. (*Herb.* of Juss.)
‡ 1084. THALICTRUM. *Cal.* 0. *Pet.* 4 seu 5. *Sem.* ecaudata.
1. *Alpinum.* Mts. Scotland, Wales, Lapland. *Peren.*
2. *Fœtidum.* Montpellier, Switzerland. *Peren.*
3. *Tuberosum.* Spain and the Pyrenees. *Peren.*
4. *Cornuti.* Canada. *Peren.*
5. *Dioicum.* Canada. *Peren.*
6. *Elatum.* Hungary. *Peren.*
7. *Majus.* England and Austria. *Peren.*
8. *Medium.* Hills in Hungary. *Peren.*
9. *Minus.* Engl. and other pts. of Eur. *Peren.*
10. *Rugosum.* North America. *Peren.*
11. *Sibericum.* Siberia and Armenia. *Peren.*
12. *Squarrosum.* Siberia. *Peren.*
13. *Purpurascens.* Canada. *Peren.*
14. *Angustifolium.* Germany. *Peren.*
15. *Flavum.* Engl. and other pts. of Eur. *Peren.*
16. *Nigricans.* Austria. *Peren.*
17. *Simplex.* Sweden, Denmark, France. *Peren.*
18. *Lucidum.* About Paris and in Spain. *Peren.*
19. *Aquilegifolium.* Denm. Switz. Austria. *Peren.*
20. *Contortum.* Siberia. *Peren.*
21. *Petaloideum.* Dauria. *Peren.*
22. *Styloideum.* Siberia. *Peren.*
23. *Japonicum.* Japan. *Peren.*
* 24. *Lævigatum.* Mts. of Pennsyl. and Car. (*Mich.*)
* 25. *Galeoides.* Near Strasburg and Basle.
* 26. *Angulatum.* (*Persoon.*)
* 27. *Speciosum.* Spain and south of France.
1088. ISOPYRUM. *Cal.* 0. *Pet.* 5. *Nect.* 3-fida, tubulata. *Caps.* recurvæ, polyspermæ.

arioides. Woody parts of Siberia.
lictroides. The Alps. *Ann.*
ilegioides. Switzerland and Italy. *Peren.*
LLEBORUS. *Cal.* 0. *Pet.* 5 seu plura.
biata, tubulata. *Caps.* polyspermæ, erec-

malis. Lombardy, Switz. Italy, Aus. *Per.*
unculinus. Cappadocia. *Peren.*
er. Austria and the Appenines. *Peren.*
idis. Engl. and other pts. of Eur. *Peren.*
ntalis. In the East. *Peren.*
idus. Engl. Germ. Switz. France. *Per.*
dus. *Peren.*
folius. Canada and in Siberia. *Peren.*
purascens. Hungary. (*Pl. Hung.*)
unites this with the preceding genus.
LTHA. *Cal.* 0. *Pet.* 5. *Nect.* 0. *Caps.* plu-
spermæ.
istris. Britain, and other parts of Eu-
, Asia, and America. *Peren.*
ans. Siberia. *Peren.*
ittata. Falkland Isles. (*Cavan.*)
endiculata. St. of Magell. (*Herb.* of Jus.)
EMONE. *Cal.* 0. *Pet.* 6-9. *Sem.* plura.
atica. Stony parts of Europe. *Peren.*
ens. Siberia about Tobolsk. *Peren.*
nua. Japan near Jedo. *Peren.*
nalis. Sweden, Switz. Germany. *Peren.*
lleri. Savoy and Dauphiny. *Peren.*
satilla. Engl. and other pts. of Eur. *Per.*
tensis. Denmark and Germany. *Peren.*
na. Styria, Switzerland, Austria. *Peren.*
folia. Switz. Dauphiny, Savoy. *Peren.*
onaria. In the East, Constantinople. *Per.*
tensis. Italy and Switzerland. *Peren.*
nata. Portugal and Algiers. *Peren.*
rica. Siberia. *Peren.*
densis. France and Germany. *Peren.*
estris. Germany, Switzerland, &c. *Per.*
giniana. Virginia. *Peren.*
apetala. Brasil. *Peren.*
ernata. Brasil. *Peren.*
sylvanica or *Aconitifolia.* Canada. *Per.*
hotoma. Canada and Siberia. *Peren.*
folia. France and Carniola. *Peren.*
nquefolia. Virginia and Canada. *Peren.*
orosa. Europe. *Peren.*
unina. Appenines, Rome, England. *Per.*
exa. Siberia. *Peren.*
unculoides. North of Europe. *Peren.*
cissiflora. France, Switzerland, Austria,
ia. *Peren.*
ellata. Cappadocia. *Peren.*
lictroides. Virginia and Canada. *Peren.*
obata. East of Siberia.
ifolia. Hudson's Bay. } Juss. *Ann. du*
. Siberia. } *Mus.* p. 248.
ariæfolia. Monte Video.
ELIA. *Cal.* 3-phyll. *Pet.* 15. *Bac.* multæ,

mpaca or *Suaveolens.* India. *Shrub.*
mpaca, or *sericea.* India. *Shrub.*
OLLIUS. *Cal.* 0. *Pet.* circiter 14. *Caps.*
ovatæ, polyspermæ.
pæus. Mts. of Sweden, Germany. *Per.*
icus. Siberia. *Peren.*
PIA. *Cal.* 3-phyll. *Pet.* 6. *Caps.* sub-
4-gonæ bivalves. *Sem.* arillata.

Class XIII.
Polyandria.

1. *Muricata.* Jamaica. *Shrub.*
2. *Frutescens.* Guiana and Brasil. *Shrub.*
3. *Glabra.* Jamaica and Barbadoes. *Shrub.*
*4. *Undulata.* Equinoctial Africa. (Beauvois, *Fl. D'Orvares.*)

1080. UNONA. *Cal.* 3-phyll. *Pet.* 6. *Bacc.* 2-vel. 3-spermæ articulato-moniliformes.
1. *Discreta.* Surinam. *Shrub.*
2. *Tomentosa.* Cochinchina. *Shrub.*
3. *Discolor.* East Indies. *Shrub.*
4. *Concolor.* Woods of Guiana. *Shrub.*

1077. UVARIA. *Cal.* 3-phyll. *Pet.* 6. *Bac.* numerosæ, pendulæ, 4-spermæ.
1. *Zeylanica.* India. *Shrub.*
2. *Lanceolata.* Jamaica. *Shrub.*
3. *Cerasoides.* East Indies. *Shrub.*
4 *Suberosa.* East Indies. *Shrub.*
5. *Tomentosa.* East Indies. *Shrub.*
6. *Odorata.* Java and China. *Shrub.*
7. *Monosperma.* Woods in the interior of Guiana. *Shrub.*
8. *Lutea.* East Indies. *Shrub.*
9. *Ligularis.* Amboyna. *Shrub.*
10. *Longifolia.* East Indies. *Shrub.*
11. *Japonica.* Japan. *Shrub.*
*12? *Cananga.* Woods of Guiana. (*Lam.*)

1078. ANNONA. *Cal.* 3-phyll. *Pet.* 6. *Bac.* polysperma, subrotunda, cortice squamato.
1. *Muricata.* Warm parts of America. *Shrub.*
2. *Tripetala.* Peru. *Shrub.*
3. *Squamosa.* South America. *Shrub.*
4. *Paludosa.* Meadows of Guiana. *Shrub.*
5. *Reticulata.* South America. *Shrub.*
6. *Longifolia.* Guiana. *Shrub.*
7. *Punctata.* Woods of Guiana. *Shrub.*
8. *Hexapetala.* China and East Indies. *Shrub.*
9. *Palustris.* America. *Shrub.*
10. *Glabra.* Carolina. *Shrub.*
11. *Triloba.* Carolina. *Shrub.*
12. *Asiatica.* Ceylon. *Shrub.*
13. *Ambotay.* Woods of Guiana. *Shrub.*
14. *Africana.* America. *Shrub.*
15. *Pygmæa.* Florida. *Shrub.*
16. *Obovata.* Florida. *Shrub.*
17. *Grandiflora.* Madagascar and Bourbon. *Shr.*
18. *Amplexicaulis.* Madagascar, Mauritius. *Shr.*
*19. *Senegalensis.* Senegal. (*Herb. of* Juss.)

1073. LIRIODENDRON. *Cal.* 3-phyll. *Pet.* 9. *Samaræ* imbricatæ in strobilum.
1. *Tulipifera.* North America. *Shrub.*
2. *Coco.* Cochinchina and China. *Shrub.*
3. *Figo.* China. *Shrub.*
4. *Liliifera.* Mts. of Amboyna. *Shrub.*

1074. MAGNOLIA. *Cal.* 3-phyll. *Pet.* 9. *Caps.* 2-valv. imbricatæ. *Sem.* baccata, pendula.
1. *Grandiflora.* Florida and Carolina. *Shrub.*
2. *Plumieri.* St Lucia, Martinique. *Shrub.*
3. *Glauca.* Virginia and Pennsylvania. *Shrub.*
4. *Obovata.* Japan and China. *Shrub.*
5. *Tomentosa.* Japan. *Shrub.*
6. *Acuminata.* Pennsylvania. *Shrub.*
7. *Tripetala.* Carolina and Virginia. *Shrub.*
8. *Auriculata.* Carolina and Georgia. *Shrub.*
*9. *Cordata.* Upper Carolina, Georgia. (*Persoon.*)
*10. *Macrophylla.* At the R. Tenassee. (*Mich.* 327.)
*11. *Fuscata.* China. } Andrews' *Rep.* t. 226,
*12. *Pumila.* China. } 229.

1075. NELUMBIUM (or NELUMBO) *Cal.* 4 seu 5.

phyll. *Cor.* polypetala. *Nuces* 1-spermæ receptaculo truncato immersæ.

1. *Speciosum*, or *Indicum*. China, India, Persia. *Per.*
2. *Luteum.* Virginia, Carolina, Florida. *Peren.*
3. *Pentapetalum.* Carolina. *Peren.*
4. *Reniforme.* Carolina. *Peren.*

1071. Dillenia. *Cal.* 5-phyll. *Pet.* 5. *Caps.* polyspermæ, connatæ, pulpa repletæ.

1. *Scandens.* New Holland. *Shrub.*
2. *Integra.* Ceylon. *Shrub.*
3. *Speciosa.* Malabar and Java. *Shrub.*
4. *Elliptica.* Amboyna, Celebes. *Shrub.*
5. *Serrata.* Java and Celebes. *Shrub.*
6. *Pentagyna.* Coromandel. *Shrub.*
7. *Retusa.* Woods of Ceylon. *Shrub.*
8. *Dentata.* Ceylon. *Shrub.*
* 9. *Volubilis.* New Holland. (*Andrews*, 126.)

‡ 1086. Ranunculus. *Cal.* 5-phyll. *Pet.* 5, intra ungues poro mellifero. *Sem.* nuda.

1. *Flammula.* England, and other parts of Europe. *Peren.*
2. *Reptans.* Sweden, Russia, Switz. *Peren.*
3. *Lingua.* Britain, and other parts of Europe. *Peren.*
4. *Nodiflorus.* About Paris, and in Sicily. *Per.*
5. *Gramineus.* England and France. *Peren.*
6. *Pyrenæus.* Pyrenees, Switz. Dauphiny. *Per.*
7. *Parnassifolius.* Mts. of Switz. &c. *Peren.*
8. *Ophioglossoides.* Mts. of Dauphiny. *Peren.*
9. *Amplexicaulis.* Switzerland, Pyrenees, and Appenines. *Peren.*
10. *Bullatus.* Portugal, Candia, and North of Africa. *Peren.*
11. *Salsuginosus.* Siberia. *Peren.*
12. *Ficaria.* England, and other parts of Europe. *Peren.*
13. *Frigidus.* Mountains of Siberia. *Peren.*
14. *Thora.* Mountains of Switzerland and the Pyrenees, &c. *Peren.*
15. *Creticus.* Candia. *Peren.*
16. *Cassubicus.* Cassubia, Siberia, &c. *Peren.*
17. *Auricomus.* England, and other parts of Europe. *Peren.*
18. *Abortivus.* Virginia and Canada. *Peren.*
19. *Trilobus.* At Mayne in Africa. *Peren.*
20. *Sceleratus.* England, and other parts of Europe. *Peren.*
21. *Aconitifolius.* Switz. France, Austria. *Per.*
22. *Platanifolius.* Mts. of France and Italy. *Per.*
23. *Spicatus.* About Algiers. *Peren.*
24. *Illyricus.* Hungary, &c. *Peren.*
25. *Flabellatus.* About Algiers. *Peren.*
26. *Asiaticus.* Asia and Africa. *Peren.*
27. *Japonicus.* Japan. *Peren.*
28. *Rutæfolius.* Austria, Dauphiny, &c. *Peren.*
29. *Glacialis.* Lapland, Switz. Dauphiny. *Per.*
30. *Seguieri.* Dauphiny, Italy, Carniola. *Per.*
31. *Nivalis.* Lapland and Norway. *Peren.*
32. *Montanus.* Mountains of Dauphiny, &c. *Per.*
33. *Gouani.* Pyrenees and Hungary. *Peren.*
34. *Alpestris.* Mountains of Austria. *Peren.*
35. *Lapponicus.* Mountains of Lapland. *Peren.*
36. *Hyperboreus.* Greenland, Iceland. *Peren.*
37. *Monspeliacus.* Montpellier.
38. *Pensylvanicus.* Canada, Pennsylv. *Ann. Bien.*
39. *Ternatus.* Japan.
40. *Bulbosus.* Brit. and other pts. of Europe. *Per.*
41. *Philonotis.* Europe. *Ann.*
42. *Polyrhizos.* Siberia. *Peren.*
43. *Repens.* Engl. and other pts. of Europe. *Per.*
44. *Polyanthemos.* Grassy parts north of Europe. *Peren.*
45. *Acris.* Engl. and other pts. of Europe. *Per.*
46. *Cappadocicus.* Cappadocia. *Peren.*
47. *Lanuginosus.* Montpellier, Switzerland. *Per.*
48. *Chærophyllus.* France and Italy. *Peren.*
49. *Millefoliatus.* Tunis. *Peren.*
50. *Parvulus.* England, Montpellier, Italy, Russia. *Peren.*
51. *Oxyspermus.* Siberia.
52. *Arvensis.* Engl. and other pts. of Europe. *Ann.*
53. *Muricatus.* Engl. and other pts. of Europe. *An.*
54. *Parviflorus.* Engl. and other pts. of Eur. *Ann.*
55. *Orientalis.* In the East. *Ann.*
56. *Grandiflorus.* In the East. *Peren.*
57. *Falcatus.* South of Europe. *Ann.*
58. *Polyphyllus.* Hungary. *Ann.*
59. *Hederaceus.* Engl. France, Germany. *Peren.*
60. *Aquatilis*, or *heterophyllus.* England and other parts of Europe. *Peren.*
61. *Fluviatilis.* Europe and N. of Africa. *Peren.*
* 62. *Hirsutus.* England and other parts of Europe. *Ann.* (*Smith.*)
* 63. *Filiformis.* North America. (*Mich.* i. 320.)
* 64. *Plantagineus.* Portugal. (*Brotero.*)
* 65. *Crenatus.* Hungary. (*Fl. Hungar.*)
* 66. *Bonariensis.* Buenos Ayres. (Poir. *Enc.*)
* 67. *Peruvianus.* Peru. (*Herb.* of Juss.)
* 68. *Teneriffæ.* Teneriffe. (*Persoon.*)
* 69. *Paludosus.* Barbary. (*Desfont.*)
* 70. *Gregarius.* Portugal. (*Brotero.*)
* 71. *Septentrionalis.* North America. } See Poir.
* 72. *Recurvatus.* Near New York. } *Enc.* vi.
* 73. *Marylandicus.* North America. } 123.
* 74. *Hispidus.* Lower Carolina. (*Mich.* i. 321.
* 75. *Apiifolius.* Buenos Ayres. (*Herb.* of Juss.)
* 76. *Prostratus.* Near Paris. (Poir. *Id.*)
* 77. *Rupilus.* Portugal. } Brotero, Fl. *Lusit.* ii.
* 78. *Adscendens.* Portugal. } 370.
* 79. *Macrophyllus.* Barbary. (*Desfont.*)
* 80. *Sericeus.* Isle of France. (Poir. *Id.*)
* 81. *Nitidus.* Carolina. (*Walter.*)
* 82. *Olissiponensis.* (*Herb.* of Juss.)
* 83. *Tomentosus.* Upper Carolina. (Poir. *Id.*)
* 84. *Capillaceus.* Germany. } (Hoffman. *Fl.*
* 85. *Rigidus.* Germany. } *Germ.* 257.)
* 86. *Echinatus.* New Charlestown. (*Ventenat.*)
* 87. *Trilobus.* Barbary. (*Desfont.*)
* 88. *Ventricosus.* Brasil. (*Ventenat.*)

1072. Illicium. *Cal.* 6-phyll. *Pet.* 27. *Caps.* plures. in orbem digestæ, bivalves, 1-spermæ.

1. *Anisatum.* Japan, China. *Shrub.*
2. *Floridanum.* Florida. *Shrub.*
* 3. *Parviflorum.* Florida. *Shrub.* (*Ventenat.*)

‡ 1085. Adonis. *Cal.* 4-phyll. *Pet.* quinis plura absque nectario. *Sem.* nuda.

1. *Æstivalis.* South of Europe. *Ann.*
2. *Autumnalis.* England and other parts of Europe. *Ann.*
3. *Flammea.* Austria. *Ann.*
4. *Vernalis.* Germany, Switzerland, &c. *Per.*
5. *Apennina.* Siberia and the Appenines. *Per.*
6. *Filia.* Cape of Good Hope. *Peren.*
7. *Capensis.* Cape of Good Hope. *Peren.*
8. *Vesicatoria.* Cape of Good Hope. *Peren.*

NEW GENERA.

MONOGYNIA.

CIUM. *Cal.* 2-phyll. *Cor.* 4-pet. *Siliqua*
earis 2-3-valv. *Sem.* plurima, punctata.
ius comprehends Sp. 3, 4, 5, of CHELI-
M, p. 234. See Smith, *Fl. Brit.* ii. p. 563.
A. *Cal.* 4-part. *Pet.* 11-12. interiora
Stig. orbiculatum, 7-12-lobatum. *Bacca*
) globosa. *Nux* 6-12. loc. polysperma.
ulpa nidulantia.
nosa. Egypt and Senegal. (*Juss.*)
EBIA. *Cal.* 5-phyll. interne coloratus, de-
Cor. 5-pet. basi squamula aucta. *Fruct.*
4-part. loculis, 1-2-spermis.
ericana. Philippine Isles. (*Cav.*)
OMIA. *Cal.* 7-phyllus. *Pet.* inferne equi-
nterioribus angustioribus. *Stig.* 3-5. *Bac.*
3-5-loc. polysperma.
mentosa. Groves of Peru. } See *Fl. Per.*
nata. Groves of Peru. } *Syst.* 135.
TATIA. *Cal.* 3-partitus: laciniis æqualibus
deciduis. *Pet.* 11-12. *Stig.* subquinque-
acca sulcata, 5-loc.: loculis 1-spermis. *Sem.*
uca. Africa. (*Beauvois.*)
A. *Cal.* 4-part. coloratus. *Cor.* 0. *Nectar,*
ma, staminiformia. *Stig.* simplex. *Caps.*
valvis, polysperma. *Recept.* lineare, per
valvulas excurrens. *Sem.* striata. (*Fl. Per.*)
gosa. Peru. 2. *Parviflora.* Peru.
A. *Cal.* 4-5-6-part.: *Cor.* 0. *Nectar.* fila
capillaria. *Stylus* subulatus. *Stig.* obtu-
acca 1-loc. polysperma. *Recept.* triplex,
tes pericarpii decurrens. (*Fl. Per.*)
rata. Groves of Peru.
grifolia. Groves of Peru.
data. Groves of Peru.
LAGMITIS. *Cal.* 4-6-phyll. *Cor.* 4-6-pet.
arnosum 4-gonum. *Bacca* globosa 1-loc.
mate 4-lobo coronata.
bogia. India. (Murray, *Corn. Got.*)
IA. *Cal.* 2-phyll. *Pet.* 4. *Anth.* ovatæ.
sile, 4-lobum. *Fruct.* - - -
anensis. Guiana. (*Aublet.*)
A. *Cal.* 3-5-part. *Pet.* 3-5, serrulata, un-
. *Caps.* cylindrica (longissima) 1-loc.
na. *Sem.* (magna, Æsculi) imbricata,
oluta.
anensis. (*Sternbeckia lateriflora* of Willd.)
IA. *Cal.* 0. *Pet.* 4. *Stig.* infundibulif.
a, 1-loc. 3-sperma.
riflora. (Lamarck, *Enc.* ii. 245.)
RIA. *Cal.* 5-fid. *Cor.* 5-pet. *Caps.* 1-loc.
Sem. maximum.
ica. (*Elæocarpus copalliferus* of Willd.)
LEPIS. *Cal.* 3-phyll. *Cor.* 0. *Anth.* la-
. penicilliforme. *Drupa* clavata 3-4-gona,
æqualibus, cal. coronata.
mosa. Peru. *Shr.* (*Fl. Per.* 139.)
ROMYRON. *Cal.* coloratus, 6-phyll. *Cor.*
ssile, concavum, 3-lobum. *Caps.* 3-loc. 3-

icillatum. Groves of Peru. (*Fl. Per.* 140.)
. *Cal.* 1-phyll. 5-lobus. *Pet.* 5. patentia.

Styl. brevis, crassus. *Bac.* corticosa, turbinato-globosa demum lignosa, locul. 12-16. (*Stam.* 32-36.)

1. *Marmelos.* (*Cratæva Marmelos* of Willd.)

‡ XVI. HELIANTHEMUM. *Cal.* laciniis sæpe inequalibus, 2 extimis minoribus. *Caps.* 1-loc. 3-valv. medioseptiferis.

This genus, beside the greater part of those species which we have given under *Cistus*, contains the following new species:

1. *Atriplicifolium.* Spain. } See Lam. *Enc.* ii. p. 19.
2. *Cheiranthoides.* Portugal. }
3. *Lasianthum.* Spain and Portugal. }
4. *Involucratum.* Portugal. }
5. *Alyssoides.* France and Spain. }
6? *Coriaceum.* Madagascar. (*Persoon.*)
7. *Corymbosum.* Carolina and Georgia. (*Mich.*)
8. *Echioides.* Spain. (Lamarck, *Id.*)
9. *Petiolatum.* Spain. (*Thibaud.*)
10. *Ramuliflorum.* Georgia, Carolina. } *Mich.* i. p. 307.
11. *Carolinianum.* Carolina. }
12. *Inconspicuum.* Near Aranjuez in Spain. (*Thi.*)
13. *Intermedium.* Near Aranjuez in Spain. (*Thi.*)
14. *Denticulatum.* Montpellier. (*Thib.*)
15. *Retrofractum.* Spain.
16. *Villosum.* Spain. (*Thib.*)
17. *Crassifolium.* Near Cafsa (*Desfont.*)
18. *Acuminatum.* Near Nice. (*Persoon.*)
19. *Thibaudi.* Corsica. (*Herb.* of Thib.)
20. *Stoechadifolium.* Portugal. (*Brotero.*)
21. *Virgatum.* Near Mayane. (*Desfont.*)
22. *Obscurum.* Near Fountainbleau. (*Thuill.*)
23. *Barbatum.* Portugal. S. of France. (*Persoon.*)
24. *Pulverulentum.* France. (*Thuill.*)
25. *Roseum.* Europe.

XVII. LOPHIRA. *Cal.* inferus, persistens 5-phyll. 3, parva, 1 maximum ligulatum: 1 oppositum, triplo minus. *Cor.* - - *Styl.* simplex, apice 2-fid. *Nux* coriacea, 1-loc. 1-sperma.

1. *Alata.* Æquinoctial Africa. *Shrub.*

XVIII. COUBLANDIA. *Cal.* tubulosus, 4-dent. *Cor.* 1-pet. tubulosa, limbo 4-fido. *Stam.* 25, basi coalita. *Legumen.* torulosum.

1. *Frutescens.* Cayenne. (*Aublet.*)

DIGYNIA.

XIX. ABLANIA. *Cal.* 4 seu 5-part. *Cor.* 0. *Styl.* 2, bifidi. *Caps.* setosa, 1-loc. 4-valv. polysperma.

1. *Laurifolia.* Woods of Guiana. *Shr.* (*Aublet.*)

PENTAGYNIA.

XX. RHYNCHOTHEHA. *Cal.* 5-phyll. *Cor.* 0. *Stam.* 10. *Styl.* breves, oppressi. *Stig.* longa, crassa, divergentia. *Caps.* 5-coccæ, superne caudatæ, inferne dehiscentes. *Sem.* subcarinata. *Recept.* columnare 5-gonum.

1. *Spinosa.* Peru. (*Fl. Per.* 142.)

POLYGYNIA.

XXI. GUATTERIA. *Cal.* 3-phyll. *Cor.* 6-pet. *Anth.* cuneiformes. *Drupæ* plurimæ, pedunculatæ, 1-spermæ, receptac. subconvexo insertæ.

Class XIII. Polyandria.

1. *Glauca.*
2. *Ovalis.*
3. *Pendula.*
4. *Hirsuta.*

All shrubby, and from Peru. See *Fl. Per.* This genus ought, perhaps, to be joined with Uvaria.

XXII. Porcelia. *Cal.* 3-phyll. *Pet.* 6. interiora majora. *Germ.* plura. *Stig.* sessilia obtusa. *Bac.* (1 aut plures) cylindricæ aut ovatæ polyspermæ. *Sem.* suturæ internæ adnexa, arillata.

1. *Triloba.* (*Annona triloba* of Willd.)
2. *Parviflora.* Carolina and Georgia. (*Mich.*)
3. *Pygmæa.* (*Annona pygmæa* of Willd.)
4. *Grandiflora.* Georgia and Florida. (*Mich.*)
5. *Nitidifolia.* Peru. (*Fl. Per.*)

XXIII. Mollinedia. *Cal.* turbinatus, 4-fid. subclausus. *Cor.* 0. *Anth.* cuneiformes. *Stig.* subulata. *Germ.* numerosa. *Drupæ* plurimæ, sessiles. *Recept.* planum.

1. *Rotunda.* Peru.
2. *Ovata.* Peru.
3. *Lanceolata.* Peru.

See *Fl. Per.* p. 142.

XXIV. Anamenia. *Cal.* 5-phyll. *Pet.* 5. aut plura, absque nectario. *Germ.* recept. globoso imposita. *Bac.* plurimæ, 1-spermæ. (*Fol.* ternata aut pinnata. *Flor.* umbellati.)

1. *Coriacea.*
2. *Laserpitiifolia.*
3. *Gracilis.*
4. *Hirsuta.*
5. *Daucifolia.*

All from the Cape. Sp. 4. is the *Adonis Capensis* of Willd. These species have the flowers of *Adonis*, the fruit of *Hydrastis*; and the habit of the umbelliferous plants.

XXV. Ficaria. *Cal.* 3-phyll. *Pet.* 8-9 ungue nectarifero. *Sem.* compressa, obtusa, nuda.

1. *Verna.* Europe. (*Persoon.*)

XXVI. Hydropeltis. *Cal.* 6-phyll. subconnivens. *Cor.* 0. *Caps.* plures, sub-carnosæ, oblongæ, 2-loc. 1-2-spermæ.

1. *Purpurea.* Lower Carolina. (*Mich.*)

XXVII. Limnocharis. *Cal.* 3-phyll. inferus, persistens. *Cor.* 3-pet. disco hypogyno imposita. *Stam.* numerosissima, ibidem imposita: filamentis paucis fertilibus, multis castratis: antheris 2-loc. *Ovar.* circiter 20. in orbem disposita, supera: *Stig.* totidem crassiuscula. *Caps.* polyspermæ, situ et numero germinum: propria semicircularis, membranacea, interne dehiscens, externe rotundata, sulcata. *Sem.* numerosissima, conduplicata, angulo interiori capsularum affixa, echinata. *Integ.* simplex, membranaceum, muricatum. *Albumen.* 0. *Emb.* magnitudine et figura seminis. (Humboldt et Bonpland, *Pl. Æquinoct.* p. 116.)

1. *Emarginata.* Lakes in South America.

REMARKS ON THE CLASS POLYANDRIA.

The following plants might be expected to occur in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Monogynia.

Psidium *montanum.* Talinum *anacampseros.* Cleome *felina, chelidonii.* Bocconia *cordata.*

Trigynia.

Reseda *lutea.*

Polygynia.

Phytolacca *icosandra.*

CLASS XIV. DIDYNAMIA.

Class XIV. Didynamia.

Order I. Gymnospermia.

Sect. I. *Calyxes nearly 5-cleft.*

1103. Perilla. *Calycis* lacinia suprema brevissima' *Stam.* distantia. *Styl.* 2-connexi.

1. *Ocymoides.* India. *Ann.*

‡1105. Glechoma. *Antherarum* singulum par in formam crucis connivens. *Cal.* 5-fid.

1. *Hederacea.* Engl. and other pts. of Eur. *Per.*
- * 2. *Hirsuta.* Woods of Hungary. (*Pl. Hung.*)

1096. Hyssopus. *Cor.* labium inferius tripartitum, lacinula intermedia subcrenata. *Stam.* recta distantia.

1. *Officinalis.* Austria and Siberia. *Shrub.*
2. *Lophanthus.* North of China. *Peren.*
3. *Nepetoides.* Virginia and Canada. *Peren.*
4. *Scrophularifolius.* Canada. *Bien.*

1098. Elsholtzia. *Cal.* tubulosus 5-dent. *Cor.* bilabiata; labium superius 4-dent.; inferius superiori longius indivisum subcrenulatum. *Stam.* distantia.

1. *Cristata.* At the Lake Baikal. *Ann.*
2. *Paniculata.* In the wet parts of East Indies.
- * 3? *Ocymoides.* Pondicherry.

1101. Bystropogon. *Cal.* 5-subulatus, fauce barbatus. *Cor.* labium superius 2-fid. inferius 3-fid. *Stam.* distantia.

1. *Pectinatum.* In the dry chalky grounds of Jamaica, and in Peru. *Shrub.*
2. *Sidæfolium.* Peru.
3. *Suaveolens.* In the fields of S. America. *Ann.*
4. *Plumosum.* In the Canaries. *Shrub.*
5. *Origanifolium.* Nivaria. *Shrub.*
6. *Canariense.* Madeira and Canaries. *Shrub.*
7. *Punctatum.* Madeira. *Shrub.*
- * 8. *Plumosum.* Canaries. *Shrub.*

‡ 1102. Mentha. *Cor.* subæqualis, 4-fida: lacinia latiore emarginata. *Stam.* erecta distantia.

1. *Auricularia.* Watery parts of India. *Peren.*
2. *Sylvestris.* Engl. Germany, France. *Per.*
3. *Nemorosa.* Engl. Germany, Denmark. *Per.*
4. *Gratissima.* Germany, and in Switzerland. *Peren.*
5. *Niliaca.* Egypt. *Peren.*
6. *Glabrata.* Egypt. *Peren.*
7. *Viridis.* England, France, Germany, and Switzerland. *Peren.*
8. *Rotundifolia.* England and Germany. *Per.*

9. *Crispa.* Siberia, Switzerland, and Germany. *Peren.*
10. *Hirsuta.* Engl. Holland, Germany. *Peren.*
11. *Aquatica.* Europe, near water. *Peren.*
12. *Citrata.* In Europe in the Palatinate. *Peren.*
13. *Piperita.* In England. *Peren.*
14. *Sativa.* South of Europe. *Peren.*
15. *Dentata.* Europe? *Peren.*
16. *Gentilis.* England and S. of Europe. *Per.*
17. *Arvensis.* Engl. and other pts. of Eur. *Per.*
18. *Austriaca.* Ditches and banks of rivers in Germany, Austria, and Italy. *Peren.*
19. *Canadensis.* Canada.
20. *Pulegium.* England, France, Germany, and Switzerland. *Peren.*
21. *Cervina.* Montpellier and on the Rhine. *Per.*
22. *Perilloides.* India. *Ann.*
* 23. *Odorata.* Britain. *Peren.*
* 24. *Acutifolia.* Britain. *Per.* } See Smith's *Fl.*
* 25. *Rubra.* Britain. *Peren.* } *Brit.* ii. p. 615.
* 26. *Gracilis.* Britain. *Peren.*
* 27. *Canescens.* Spain. (*Roth.*)
* 28. *Capensis.* Cape of Good Hope. (*Thunb.*)
* 29. *Lavandulæfolia.* America.
* 30. *Tenuis.* Carolina and Georgia. (*Mich.*)
* 31. *Australis.* * 32. *Gracilis*
* 33. *Saluricoides.*

Sp. 9 and 10 seem to be the same. Sp. 31—33 from New Holland. See Brown's *Prodr.* p. 505.

‡ 1104. Hyptis. *Cal.* 5-dent. *Cor.* ringens, labium superius 2-fid.; inferius 3-part. lacinia intermedia sacculiformis! *Stam.* declinata.

1. *Verticillata.* Hispaniola. *Shrub.*
2. *Capitata.* Jamaica and Hispaniola. *Shrub.*
3. *Radiata.* Carolina. *Peren.*
4. *Chamædrys.* Guiana.
* 5. *Recurvata.* Cayenne. } Poiteau *Mono-*
* 6. *Atrorubens.* Cayenne. } *graphie du*
* 7. *Pseudochamædrys.* Antilles. } *Genre Hyp-*
* 8. *Spicata.* St Domingo. } *tis in Ann.*
* 9. *Scoparia.* St Domingo. } *du.Mus.* t. 4.
* 10. *Pectinata.* (*Bystropogon pectin.* of Willd.)
* 11. *Persica.* Persia. (*Sprengel.*)
* 12. *Suaveolens.* (*Bystropogon suaveol.* of Willd.)

‡ 1100. Sideritis. *Cal.* 5-fid. *Cor.* ringens lab. sup. 2-fidum; infer. 3-part. *Stam.* intra tubum corollæ. *Stig.* brevius involvens alterum.

1. *Canariensis.* Madeira and Canary Isles. *Shr.*
2. *Candicans.* Madeira. *Shrub.*
3. *Cretica.* Candia. *Shrub.*
4. *Montana.* Italy and Austria. *Ann.*
5. *Elegans* or *Nigricans.* *Ann.*
6. *Romana.* South of Europe. *Bien.*
7. *Syriaca.* Italy, Candia, and the East. *Shr.*
8. *Taurica.* Taurida. *Shrub.*
9. *Distans.* *Shrub.*
10. *Perfoliata.* In the East. *Peren.*
11. *Ciliata.* Japan.
12. *Incana.* Spain. *Shrub.*
13. *Virgata.* N. of Africa near Mascar. *Shrub.*
14. *Glauca.* Valentia. *Peren.*
15. *Hyssopifolia,* or *alpina.* Tuscany, and the Pyrenees. *Peren.*
16. *Scordioides.* Montpel. Spain, Switzer. *Per.*
17. *Spinosa.* Spain. *Shrub.*
18. *Hirsuta.* Spain, Italy, S. of France. *Peren.*
19. *Ovata.* Peru. *Peren.*
20. *Lanata.* Egypt and Palestine. *Ann.*
* 21. *Decumbens.* Cape of Good Hope. } *Thun-*
* 22. *Rugosa.* Cape of Good Hope. } *berg.*
* 23. *Ægyptiaca.* Egypt. } *Herb.* of Juss.
* 24. *Lasiantha.* Spain. }
* 25. *Linearifolia.* Spain and Portugal. (*Brotero.*)
* 26. *Alpina.* Near Narbonne and in Dauphiny.
* 27. *Chamædryfolia.* Valentia. (*Cavan.*)
* 28. *Sericea.* Spain. (*Persoon.*)
* 29. *Leucantha.* Spain. (*Cavan.*)
* 30. *Pallida.* Cape of Good Hope. } *Thun-*
* 31. *Plumosa.* Cape of Good Hope. } *berg.*

1099. Lavandula. *Cal.* ovatus, subdentatus, bractea suffultus. *Cor.* resupinata. *Stam.* intra tubum.

1. *Spica.* South of Europe. *Shrub.*
2. *Stoechas.* South of France, Spain, and the N. of Africa. *Shr.* 3. *Viridis.* Madeira. *Shr.*
4. *Dentata.* Spain and the N. of Africa. *Shrub.*
5. *Pinnata.* Madeira. *Shrub.*
6. *Multifida.* Spain and the N. of Africa. *Shr.*
7. *Abrotanoides.* Canary Isles. *Shrub.*
8. *Carnosa.* In the East Indies. *Shrub.*
* 9. *Pedunculata.* Spain. (*Cavanilles.*)
* 10. *Heterophylla.* (*Viviani.*)

‡ 1093. Teucrium. *Corollæ* labium superius nullum sed fissura ejus loco in qua *stam.* jacent.

1. *Campanulatum.* In the East and Italy. *Per.*
2. *Lævigatum.* Buenos Ayres.
3. *Orientale.* Armenia and Media. *Peren.*
4. *Parviflorum.* Armenia. *Shrub.*
5. *Botrys.* France, Germ. Switz. Italy. *Ann.*
6. *Nissolianum.* Spain and Portugal. *Ann.*
7. *Trifidum.* Cape of Good Hope. *Shrub.*
8. *Pseudo-chamæpitys.* In Spain, Portugal, and North of Africa. *Peren.*
9. *Fruticans.* Spain, Italy, Sicily, Corsica, and North of Africa. *Shrub.*
10. *Brevifolium.* Coast of Candia. *Shrub.*
11. *Creticum.* Candia and Egypt. *Shrub.*
12. *Marum.* Valentia. *Shrub.*
13. *Quadratulum.* Spain and Barbary. *Shrub.*
14. *Multiflorum.* Spain. *Shrub.*
15. *Regium.* Spain. *Shrub.*
16. *Laxmanni.* Siberia, Hungary, Sclavonia. *Bien.*
17. *Sibericum.* Siberia. *Peren.*
18. *Asiaticum.* East Indies? *Shrub.*
19. *Cubense.* In moist pts. of Cuba. *Bien.* *Per.*
20. *Arduini.* 21. *Canadense.* Canada. *Per.*
22. *Virginicum.* Virginia. *Peren.*
23. *Japonicum.* Japan. *Peren.*
24. *Inflatum.* Jamaica. *Peren.*
25. *Villosum.* Island of Tongataboo.
26. *Hyrcanicum.* Germany. *Peren.*
27. *Abutiloides.* Madeira. *Shrub.*
28. *Scorodonia.* England, Germany, Switzerland, France, and Holland. *Peren.*
29. *Pseudo-scorodonia.* Near Mayane Algiers. *Shr.*
30. *Betonicum.* Madeira. *Shrub.*
31. *Resupinatum.* Near Mascar N. Africa. *Ann.*
32. *Massiliense.* In Candia, and S. of France. *Shr.*
33. *Salviastrum.* In Portugal. *Peren.*
34. *Scordium.* Engl. and other pts. of Eur. *Shrub.*
35. *Scordioides.* Candia. *Peren.*
36. *Chamædrys.* England, Germany, Switzerland, France, Isles of the Archipelago, and near Jerusalem. *Peren.*
37. *Heterophyllum.* Madeira. *Shrub.*
38. *Bracteatum.* Near Mascar and Tlemsen. *Per.*

Class XIV. Didynamia.

39. *Lucidum.* Provence. *Peren.*
40. *Nitidum.* Morocco. *Shrub.*
41. *Flavum.* Carniola, Italy, Sicily, Malta, Spain, Montpellier, and Algiers. *Shrub.*
42. *Montanum.* Dry parts of Germany, Montpellier, Geneva, and Switzerland. *Shrub.*
43. *Supinum.* Austria. *Shrub.*
44. *Thymifolium.* Valentia. *Shrub.*
45. *Pyrenaicum.* Pyrenees. *Peren.*
46. *Rotundifolium.* Valentia. *Shrub.*
47. *Buxifolium.* Spain. *Shrub.*
48. *Aureum.* Spain, S. of France, Syria. *Shrub.*
49. *Flavescens.* South of France. *Shrub.*
50. *Gnaphalodes.* Spain. *Shrub.*
51. *Achæmenis.* Shores of the Adriatic. *Shrub.*
52. *Polium.* Candia, Italy, Spain, and south of France. *Shrub.*
53. *Trifoliatum.* Spain and Barbary. *Shrub.*
54. *Pseudhyssopus.* In the dry sunny mountains of Italy and Candia. *Shrub.*
55. *Valentinum.* Valentia. *Shrub.*
56. *Capitatum.* France, Spain, and Siberia. *Shr.*
57. *Lusitanicum.* Portugal. *Peren.*
58. *Pycnophyllum.* Spain. *Peren.*
59. *Verticillatum.* Valentia. *Shrub.*
60. *Libanitis.* Spain. *Shrub.*
61. *Pumilum.* Spain. *Shrub.*
62. *Angustissimum.* Spain. *Shrub.*
63. *Cæleste.* Highest mts. of Valentia. *Shrub.*
64. *Spinosum.* Portugal and Spain. *Ann.*
*65. *Heterophyllum.* Chili. (*Cavanilles.*)
*66. *Rosmarinifolium.* Candia.
*67? *Charamoniense.* (*Cavanilles.*)
*68. *Cymosum.* Spain. (*Thib.*)
*69. *Majoruna.* France, Spain, Siberia. (*Thib.*)
*70. *Ægypticum.* Egypt. (*Herb.* of Juss.)
*71. *Corymbosum.* New Holland. } Brown's
*72. *Racemosum.* New Holland. } *Prodr.*
*73. *Argutum.* New Holland. } p. 509.

Sp. 71—73 are given by Mr Brown, with the following character. *Cal.* 5-fid. æqualis. *Cor.* lab. *sup.* abbreviatum, 2-part. laciniis lateraliter reflexis *inf.* 3-lobum, lobo medio majore. *Stam.* e fissura lab. sup. exserta.

‡1092. AJUGA. *Cor.* labium superius minimum 2-dent. *Stam.* labio superiore longiora.

1. *Orientalis.* In the East. *Peren.*
2. *Decumbens.* At the side of woods Japan. *Per.*
3. *Pyramidalis.* Sweden, Switzerl. Germ. *Bien.*
4. *Alpina.* England, Switzerland, and Austria, and at Tubingen. *Peren.*
5. *Genevensis.* High grounds of Europe. *Per.*
6. *Reptans.* England and S. of Europe. *Peren.*
7. *Chamæpitys.* England, France, Italy, Germany, Switzerland, Hungary, the East, Barbary, and Virginia. *Ann.*
8. *Chia.* Island of Chios. *Ann.*
9. *Iva.* France, Spain, Portugal, Italy, Sicily, and North Africa. *Ann.*
10. *Salicifolia.* Armenia. *Peren.*
*11? *Africanum.* Cape of Good Hope. } *Thun-*
*12? *Capensis.* Cape of Good Hope. } *berg.*
*13. *Australis.* New S. Wales. } Brown's *Prodr.*
*14. *Sinuata.* New S. Wales. } p. 503.

1113. PHLOMIS. *Cal.* angulatus. *Cor.* labium superius, incumbens, compressum, villosum.

1. *Fruticosa.* Sicily and Spain. *Shrub.*
2. *Purpurea.* Portugal and Spain. *Shrub.*
3. *Italica.* Italy and Portugal. *Shrub.*
4. *Nissolii.* In the East.
5. *Armenica.* Armenia. *Peren.*
6. *Lychnitis.* South of Europe. *Shrub.*
7. *Laciniata.* In the East. *Peren.* *Bien.*
8. *Samia.* North of Africa. *Peren.*
9. *Crinita.* Spain. *Peren.*
10. *Biloba.* Mount Atlas, near Mayane in Algiers. *Peren.*
11. *Pungens.* Armenia, Persia, and Siberia at the river Wolga. *Peren.*
12. *Herba venti.* Spain, Italy, S. of France. *Per.*
13. *Alpina.* On the tops of the Altaian mts. *Per.*
14. *Tuberosa.* Plains of Siberia. *Peren.*
15. *Zeylanica.* India. *Ann.*
16. *Martinicensis,* or *Caribea.* Martinique. *Ann.*
17. *Urticifolia.* Arabia Felix, E. Indies. *Ann.*
18. *Decemdentata.* Society Isles.
19. *Biflora.* East Indies.
20. *Chinensis.* China. *Shrub.*
21. *Indica.* India. *Ann.*
22. *Moluccoides.* Arabia Felix. *Shrub.*
23. *Glabrata.* Arabia Felix.
24. *Alba.* Arabia Felix.
25. *Nepetefolia.* East Indies. *Ann.*
26. *Leonurus.* Cape of Good Hope. *Shrub.*
27. *Leonitis.* Cape of Good Hope. *Shrub.*
*28. *Salviæfolia.* (Jacq. *Schoenb.* iii. 58.)

Persoon ranks Sp. 25, 26, 27, under the subgenus *Leonotis.*

‡ 1112. LEONURUS. *Cal.* 5-dent. *Cor.* labium superius planum integrum; inferius 3-part. lacinia media indivisa.

1. *Crispus.* Siberia. *Peren.*
2. *Cardiaca.* Engl. and other pts. of Eur. *Per.*
3. *Marrubiastrum.* Bohemia, Ukraine, Germany, and Java. *Peren.*
4. *Galeobdolon.* Groves of Europe. *Peren.*
5. *Supinus.* Siberia. *Peren.*
6. *Tartaricus.* Tartary. *Peren.*
7. *Sibiricus.* Siberia. *Ann.*
*8. *Lanata.* (*Ballota lanata* of Willd.)

Persoon ranks Sp. 6, 7, 8, under the subgenus *Panzeria.*

‡ 1108. BETONICA. *Cal.* aristatus. *Cor.* lab. sup. adscendens planiusculum; tubus cylindricus.

1. *Officinalis.* Engl. and other pts. of Eur. *Per.*
2. *Stricta.* *Peren.*
3. *Incana.* *Peren.*
4. *Orientalis.* In the East. *Peren.*
5. *Alopecuros.* Savoy, Silesia, Upper Austria, Italy and Provence. *Peren.*
6. *Hirsuta.* Appenines and Pyrenees. *Peren.*
7. *Grandiflora.* At the R. Tereck in Siberia. *Per.*
8. *Heraclea.* In the East.

‡ 1106. LAMIUM. *Cor.* lab. sup. integrum, fornicatum; lab. inf. 2-lob.; faux utrinque margine dentata.

1. *Orvala.* Hungary, Italy, and Istria. *Peren.*
2. *Lævigatnm.* Italy and Siberia. *Peren.*
3. *Rugosum.* Italy. *Peren.*
4. *Garganicum.* Mt. of St Angelo in Italy. *Per.*
5. *Maculatum.* Italy, Germany, Silesia. *Per.*
6. *Album.* Engl. and other pts. of Eur. *Peren.*
7. *Molle.* *Peren.*
8. *Purpureum.* Engl. and other pts. of Eur. *Ann.*
9. *Incisum.* South of France. *Ann.*
10. *Bifidum.* Naples.

11. *Tomentosum.* Armenia.
12. *Amplexicaule.* Engl. and other pts. of Eur. *An.*
13. *Multifidum.* In the East. *Ann.*
*14. *Hirsutum.* (Lamarck, *Enc.*)
*15. *Hispidulum.* North America. (*Michaux.*)

‡ 1107. GALEOPSIS. *Cor.* labium superius subcrenatum, fornicatum; lab. infer. supra 2-dentatum.
1. *Ladanum.* Engl. and other pts. of Eur. *Ann.*
2. *Grandiflora ochroleuca,* or *villosa.* England, France, and Germany. *Ann.*
3. *Tetrahit.* Engl. and other pts. of Eur. *Ann.*
4. *Cannabina,* or *Versicolor.* England and other parts of Europe. *Ann.*
*5. *Angustifolia.* Europe. (*Persoon.*)
*6. *Parviflora.* Dauphiny. (*Villars.*)
*7. *Hispida.* Cape of Good Hope. (*Thunb.*)

‡ 1109. STACHYS. *Cor.* lab. superius fornicatum, lab. infer. lateribus reflexum: intermedia majore emarginata. *Stam.* deflorata versus latera reflexa.
1. *Sylvatica.* Engl. and other pts. of Eur. *Ann.*
2. *Circinata.* Tunis and Mount Atlas. *Peren.*
3. *Coccinea.* *Peren.*
4. *Palustris.* Engl. and other pts. of Eur. *Peren.*
5. *Alpina.* Germany, Switzerl. Carniola. *Per.*
6. *Germanica.* England, France, Germany, and Siberia. *Peren.* 7. *Intermedia.* *Shr.*
8. *Lanata.* Siberia. *Peren.*
9. *Cretica.* Candia. *Peren.*
10. *Heraclea.* Near Nice. *Peren.*
11. *Tenuifolia.* Pennsylvania. *Peren.*
12. *Glutinosa.* Candia. *Shrub.*
13. *Spinosa.* Candia. *Shrub.*
14. *Orientalis.* In the East.
15. *Palæstina.* Palestine. *Shrub.*
16. *Maritima.* Venice, Montpellier, the East. *Per.*
17. *Æthiopica.* Cape of Good Hope. *Peren.*
18. *Hirta.* In the East, Spain, and Italy. *Per.*
19. *Lavandulifolia.* In the East. *Peren.*
20. *Rugosa.* Cape of Good Hope. *Shrub.*
21. *Recta.* South of Europe. *Peren.*
22. *Arenaria.* Tunis, and Asiatic Turkey.
23. *Annua.* France, Germany, Switzerland. *Ann.*
24. *Arvensis.* Engl. and other pts. of Eur. *Ann.*
25. *Latifolia.* *Shrub.*
26. *Artemisia.* Cochinchina and China.
*27. *Decumbens.* (*Herb.* of Desfont.)
*28. *Nepetifolia.* (Desf. *Catal.* p. 58.)
*29. *Aspera.* Carolina. } *Mich.* ii. p. 5.
*30. *Hyssopifolia.* Carolina. }
*31. *Mauritianus.* Isle of France. } *Herb.* of Juss.
*32. *Venosa.* Isle of France. }
*33. *Scordioides.* Morocco. (Desf. *Cat.*)
*34. *Ægyptiaca.* Egypt. } *Herb.* of Jussieu.
*35. *Betæfolia.* Egypt. }
*36. *Obliqua.* Croatia. *Peren.* (*Pl. Hung.*)
*37. *Betonicæfolia.* Near Rochelle. } *Herb.* of
*38. *Corsica.* Corsica. } Richard.

‡ 1097. NEPETA. *Cor.* lab. inf. lacinula intermedia crenata, faux margine reflexo. *Stam.* approximata.
1. *Cataria.* Engl. and other pts. of Eur. *Per.*
2. *Angustifolia.* Arragon. *Peren.*
3. *Crispa.* *Peren.*
4. *Heliotropifolia.* In the East.
5. *Pannonica.* Austria and Siberia. *Peren.*
6. *Cærulea.* *Peren.*
7. *Violacea.* Spain, Siberia, Carniola. *Peren.*
8. *Incana.* In the East. *Peren.*
9. *Japonica.* Top of the mts. of Japan. *Peren.*
10. *Ucranica.* Ukraine. *Peren.*
11. *Nepetella.* South of Europe. *Peren.*
12. *Nuda.* Switzerland and Spain. *Peren.*
13. *Melissæfolia.* Candia. *Peren.*
14. *Hirsuta.* Sicily. 15. *Italica.* Italy. *Per.*
16. *Multibracteata.* Mount Atlas near Tlemsen.
17. *Reticulata.* Mount Atlas near Tlemsen.
18. *Tuberosa.* Spain and Portugal. *Peren.*
19. *Lanata.* South of Europe. *Peren.*
20. *Scordotis.* Candia. *Shrub.*
21. *Virginica.* Virginia. *Peren.*
22. *Malabarica.* Malabar. 23. *Indica.* India.
24. *Amboinica.* Amboyna. *Shrub.*
25. *Madagascariensis.* Madagascar, Mauritius, India. *Peren.*
26. *Multifida.* Throughout Siberia, beyond the river Jenisey. *Peren.*
27. *Botryoides.* Siberia at the river Jenisey. *An.*
*28. *Longiflora.* Persia. (*Ventenat.*)
*29. *Graveolens.* Dauphiny, Piedmont. } (*Villars.*)
*30. *Latifolia.* Pyrenees. (*Fl. Franç.*)
*31. *Racemosa.* In the East. (Lam. *Enc.*)
*32. *Salviæfolia.* Tauria? (*Persoon.*)

1094. SATUREIA. *Corollæ* laciniæ subæqualis. *Stam.* distantia.
1. *Juliana.* Tuscany and Florence. *Shrub.*
2. *Nervosa.* Mount Atlas. *Shrub.*
3. *Thymbra.* Candia and Tripoli. *Shrub.*
4. *Græca.* Islands of the Archipelago. *Peren.*
5. *Filiformis.* Mount Atlas. *Shrub.*
6. *Montana.* Tuscany, Narbonne, Carniola, Croatia, and Italy. *Shrub.*
7. *Rupestris.* Rocks of Carniola. *Shrub.*
8. *Hortensis.* S. of France and Italy. *Ann.*
9. *Capitata.* Candia near the Guadalquivir, Seville, Greece, and Palestine. *Shrub.*
10. *Spinosa.* Candia. *Shrub.*
11. *Viminea.* Cold mts. of Jamaica. *Shrub.*
*12. *Americana.* America. (Poir. *Enc.*)

‡ 1110. BALLOTA. *Cal.* hypocraterif. 5-dent. 10-striatus. *Cor.* lab. sup. crenatum, concavum.
1. *Nigra.* Engl. and other pts. of Eur. *Peren.*
2. *Alba.* Europe. *Peren.*
3. *Lanata.* Siberia towards China. *Peren.*
4. *Disticha.* India. *Ann.*
*5? *Sepium.* Paris. (*Thuill.*)
*6. *Mauritiana.* Isle of France. (*Herb.* of Juss.)

‡ 1111. MARRUBIUM. *Cal.* hypocraterif. rigidus, 10-striatus. *Cor.* lab. sup. bifidum, lineare, rectum.
1. *Alyssum.* Spain. *Peren.*
2. *Astracanicum.* Astracan and the East. *Per.*
3. *Peregrinum.* Italy, Candia, and Austria. *Per.*
4. *Creticum.* Mansfeld and the East. *Peren.*
5. *Candidissimum.* In the East. *Peren.*
6. *Supinum.* Spain, S. of France, and Carniol. *Per.*
7. *Catariæfolium.* In the East.
8. *Vulgare.* Engl. and other parts of Eur. *Per.*
9. *Africanum.* Cape of Good Hope. *Peren.*
10. *Crispum.* Italy and Spain. *Peren.*
11. *Hirsutum.* *Per.* 12. *Hispanicum.* Spain. *Per.*
13. *Pseudo-dictamnus.* Candia. *Shrub.*
14. *Acetabulosum.* Candia. *Peren.*
*15. *Circinatum.* In the E.? (Lam. *Encyc.* iii. 771.)

1114. MOLUCCELLA. *Cal.* campan. ampliatus. *Cor.* latior, spinosus.
1. *Spinosa.* Molucca Isles. *Ann.*
2. *Lævis.* Syria. *Ann.*
3. *Tuberosa.* Deserts of S. Tartary, Wolga. *Per.*

4. *Persica.* Persia. *Shrub.*
5. *Frutescens.* Italy. *Shrub.*
6. *Grandiflora.* Mts. of Songaria. *Peren.*

SECT. II. *Calyxes 2-lipped.*

‡ 1124. SCUTELLARIA. *Cal.* ore integro: post florescentiam clauso, operculato.
1. *Orientalis.* Armenia near Tephlis, Morocco. *Peren.*
2. *Albida.* In the East. *Peren.*
3. *Alpina.* Alps of Switzerland. *Peren.*
4. *Lupulina.* Siberia and Tartary. *Peren.*
5. *Lateriflora.* Canada and Virginia. *Peren.*
6. *Galericulata.* Engl. and other pts. of Eur. *Per.*
7. *Hastifolia.* Austria and Germany, coasts of Sweden. *Peren.*
8. *Minor.* England and Germany. *Peren.*
9. *Integrifolia*, or *Ovalifolia.* Virginia, Canada.
10. *Havanensis.* Shores of the Havannah.
11. *Purpurascens.* Caribbee Isles.
12. *Hyssopifolia.* Virginia.
13. *Peregrina.* Italy, Siberia, and Hungary. *Per.*
14. *Columnæ.* Italy. *Peren.* 15. *Indica.* China.
16. *Altissima.* In the East. *Peren.*
17. *Cretica.* Candia. *Shrub.*
* 18. *Grandiflora.* Siberia. (Curt. *Mag.* t. 635.)
* 19. *Fruticosa.* Persia. (Desfont. *Cat.*)
* 20. *Pilosa.* Carolina and Georgia. } *Mich.* i.
* 21. *Parvula.* Canada and the Illinois. } p. 12.
* 22. *Racemosa.* Monte Video. (*Herb.* of Juss.)
* 23. *Humilis.* New Holl. and Van Diem. Island.
* 24. *Mollis.* New South Wales.

For Sp. 23, 24, see Brown's *Prodr.* p. 507.

‡ 1117. THYMUS. *Cal.* bilabiati faux villis clausa.
1. *Serpyllum.* Engl. and other parts of Eur. *Shr.*
2. *Lanuginosus.* France and Germany. *Shrub.*
3. *Lævigatus.* Arabia Felix. *Shrub.*
4. *Vulgaris.* Stony mts. of Spain and Siberia. It is very common in the south of France. *Shr.*
5. *Lanceolatus.* Mt. Atlas near Tlemsen. *Shr.*
6. *Numidicus.* Near La Calle in Barbary. *Shr.*
7. *Zygis.* Spain. *Shrub.*
8. *Marschallianus.* Taurida. *Shrub.*
9. *Inodorus.* Dry hills of Algiers. *Shrub.*
10. *Acinos.* Engl. and other parts of Eur. *Ann.*
11. *Patavinus.* S. of Eur. and Hung. *Ann. Bien.*
12. *Alpinus.* Alps of Switzerland and Austria, and of Montpellier.
13. *Montanus.* Mountains of Carpathia, of the Vallais and Piedmont. *Ann.*
14. *Piperella.* Spain.
15. *Brownei.* Jamaica. *Ann. Peren.*
16. *Filiformis.* Majorca and Minorca. *Shrub.*
17. *Cephalotus.* Spain and Portugal. *Shrub.*
18. *Striatus.* Naples. *Shrub.*
19. *Villosus.* Portugal. *Shrub.*
20. *Mastichina.* Stony parts of Spain. *Shrub.*
21. *Tragoriganum.* Candia. *Shrub.*
22. *Virginicus.* Virginia. *Peren.*
* 23. *Angustifolia.* Europe. (*Persoon.*)
* 24. *Acicularis.* Croatia. *Shrub.* } *Pl. Rar.*
* 25. *Croaticus.* Mts. of Croatia. } *Hung.*
* 26. *Richardi.* Balearic Isles. }
* 27. *Carolinianus.* Carol. and Georgia. (*Mich.*)
* 28. *Corsicus.* Corsica. (*Herb.* Richard.)
* 29. *Micranthus.* Portugal. (*Brotero.*)
* 30. *Teneriffæ.* Teneriffe. (*Herb.* of Lam.)
* 31. *Multiflorus.* (*Persoon.*)
* 32. *Calamintha.* } under *Melissa* { Smith, *Flor.*
* 33. *Nepeta.* } in Willd. { *Brit.* ii. 641.

See the new genus ACYNOS.

1122. PLECTRANTHUS. *Cal.* lacinia summa majore. *Cor.* resupinata ringens, tubo sursum gibbo vel calcarato.
1. *Fruticosus.* Cape of Good Hope. *Shrub.*
2. *Galeatus.* Java.
3. *Nudiflorus.* China. *Shrub.*
4. *Forskolæi.* Arabia Felix and Madagascar.
5. *Crassifolius.* Egypt.
6. *Punctatus.* Africa. *Bien.*

1121. OCIMUM. *Cal.* labio superiore orbiculato; inferiore 4-fido. *Cor.* resupinatæ alterum labium 4-fidum; alterum indivisum. *Fil.* exteriora basi processum emittentia.
1. *Thyrsiflorum.* India. 2. *Inflexum.* Japan.
3. *Virgatum.* Japan near Nagasaki.
4. *Monachorum.* India. *Ann.*
5. *Gratissimum.* India. *Shrub.*
6. *Album.* India and Java. *Ann.*
7. *Tomentosum.* Cape of Good Hope. *Shrub.*
8. *Grandiflorum.* Arabia Felix. *Shrub.*
9. *Basilicum.* India and Persia. *Ann.*
10. *Minimum.* Ceylon. *Ann.*
11. *Integerrimum.* East Indies.
12. *Sanctum.* India. *Ann.*
13. *Rugosum.* Japan. 14. *Crispum.* Japan.
15. *Scabrum.* Japan.
16. *Americanum.* America. *Ann.*
17. *Verticillatum.* Cape of Good Hope.
18. *Acutum.* Japan.
19. *Tenuiflorum.* Malabar. *Ann. Shrub.*
20. *Polystachyon.* India. *Ann.*
21. *Serphyllifolium.* Mt. Chadra in Arab. Fel. *Shr.*
22. *Menthoides.* Ceylon. 23. *Molle.* India. *Ann.*
24. *Adscendens.* India. *Peren.*
25. *Scutellarioides.* India.
26. *Prostratum.* India. *Ann.*
27. *Capitellatum.* China.
* 28. *Racemosum.* Cape of G. Hope. (*Thunb.*)
* 29. *Madagascariense.* Madagascar. (*Herb.* of Juss.)
* 30. *Paniculatum.* Madagascar.

‡ 1125. PRUNELLA. *Fil.* bifurca: altero apice antherifera. *Stig.* 2-fid.
1. *Vulgaris.* England and other parts of Europe, New Holland. *Peren.*
2. *Grandiflora.* Rocks of Europe. *Peren.*
3. *Hyssopifolia.* Montpellier. *Peren.*
* 4. *Ovata.* America.
* 5. ? *Pensylvanica.* Pennsylv. (Willd. *H. Ber.*)
* 6. ? *Longifolia.* France. (*Thuill.*)
* 7. *Laciniata.* Europe. (Lam. *Ill.*)
* 8. *Pinnatifida.* Germany. (*Roth.*)
* 9. ? *Intermedia.* Portugal. (*Brotero.*)

See Brown's *Prodromus*, p. 507.

1126. CLEONIA. *Fil.* bifurca: apice altero antherifera. *Stig.* 4-fidum.
1. *Lusitanica.* Portugal and Spain. *Ann.*

1123. TRICHOSTEMA. *Corollæ* lab. superius falcatum. *Stam.* longissima.
1. *Dichotoma.* Virginia and Pennsylvania. *Ann.*
2. *Brachiata.* North America.
* 3. *Spiralis.* Cochinchina. (*Loureiro.*)

1119. DRACOCEPHALUM. *Corollæ* faux inflata, lab. super. concavum.
1. *Virginianum.* Canada and Virginia. *Peren.*
2. *Denticulatum.* Carolina. *Peren.*

3. *Canariense.* Canary Isles. *Shrub.*
4. *Pinnatum.* At the lake Baikal. *Shrub.*
5. *Origanoides.* Siberia. *Shrub.*
6. *Palmatum.* Siberia. *Peren.*
7. *Peregrinum.* Siberia. *Peren.*
8. *Fruticulosum.* Siberia. *Shrub.*
9. *Austriacum.* Austria, Hungary, Transylvania, and the mts. of Portugal. *Peren.*
10. *Ruyschiana.* Siberia, Sweden, Switzerland, and Denmark. *Peren.*
11. *Grandiflorum.* Siberia. *Ann.*
12. *Altaiense.* On the top of the Altaian mts. *Per.*
13. *Sibiricum.* Siberia. *Peren.*
14. *Moldavica.* Moldavia and Siberia. *Ann.*
15. *Canescens.* In the East. *Ann.*
16. *Peltatum.* In the East. *Ann.*
17. *Nutans.* Siberia. *Peren.*
18. *Thymiflorum.* Siberia. *Ann.*
* 19. *Variegatum.* Carolina. (Vent. *Hort. Cels.*)
* 20. *Chamædryoides.* (Balbis, *Miscell.* p. 29.)

‡ 1116. ORIGANUM. *Strobilus* 4-gonus, spicatus, calyces colligens. *Cor.* lab. sup. erectum planum, inferius 3-part. laciniis æqualibus.
1. *Egyptiacum.* Egypt. *Peren.*
2. *Dictamnus.* Mount Ida in Candia. *Shrub.*
3. *Sipyleum.* Mount Sipylus in Phrygia. *Shr.*
4. *Tournefortii.* Island Amorgos. *Shrub.*
5. *Ciliatum.* Guinea. 6. *Benghalense.* Bengal.
7. *Creticum.* South of Europe, Palestine, and Basle. *Peren.*
8. *Smyrnæum.* Candia and Smyrna. *Peren.*
9. *Heracleoticum.* S. of Europe and Greece. *Per.*
10. *Vulgare.* England, Europe, Canada. *Peren.*
11. *Glandulosum.* Mt. Atlas, near Mascar. *Per.*
12. *Onites.* Syracuse. *Shrub.*
13. *Syriacum.* Syria. 14. *Maru.* Candia. *Per.*
15. *Majorana.* Portugal and Palestine. *Ann.*
16. *Majoranoides.* Shrub.
* 17. *Pallidum.* In the East. *Peren.* (*Desfont.*)

1115. CLINOPODIUM. *Involuc.* multisetum, verticillo subjectum. *Cal.* bilabiatus. *Cor.* lab. sup. planum obcordatum rectum.
1. *Vulgare.* England, Europe, Canada. *Per.*
2. *Egyptiacum.* Egypt. *Peren.*
3. *Incanum.* North America. *Peren.*

1095. THYMBRA. *Cal.* subcylindricus, bilabiatus, utrinque linea villosa exaratus. *Styl.* semibifidus.
1. *Spicata.* North of Turkey and Syria. *Shr.*
2. *Verticillata.* South of Europe. *Shrub.*
3. *Ciliata.* Dry hills of North Africa, near Mascar. *Shrub.*
* 4? *Hirsuta.* In the East. (*Ventenat.*)

1120. MELITTIS. *Cal.* tubo corollæ amplior. *Cor.* lab. sup. planum; lab. inf. crenatum. *Anth.* cruciatæ.
1. *Melissophyllum.* England, Germany, Switzerland, Austria, and Montpellier. *Shrub.*
2. *Japonica.* Japan. *Ann.*
* 3. *Grandiflora.* Britain. (Smith, *Fl. Brit.*)

1118. MELISSA. *Cal.* aridus, supra planiusculus: lab. sup. subfastigiato. *Corollæ* lab. sup. subfornicatum, 2-fidum; lab. inf. lobo medio cordato.
1. *Officinalis.* France, Geneva, and Italy. *Per.*
2. *Grandiflora.* Hills of Tuscany, Carniola, and Carinthia. *Peren.*
3. *Calamintha.* Italy, Spain, France, Switzerland, and Austria. *Peren.*
4. *Nepeta.* Engl. France, Italy, Switzerl. *Per.*
5. *Pyrenaica.* Pyrenees, Tyrol, Carniola. *Per.*
6. *Cretica.* Montpellier and Spain. *Shrub.*
7. *Fruticosa.* Spain. *Shrub.*
* 8. *Cordifolia.* Europe.
* 9. *Obtusifolia.* South America. (*Mich.*)
* 10. *Veronicæfolia.* (*Herb.* of Richard.)
* 11? *Marifolia.* Spain and France. (*Cavan.*)

Class XIV. Didynamia.

1127. PRASIUM. *Baccæ* 4-1-spermæ.
1. *Majus.* Sicily, Rome, and Africa. *Shrub.*
2. *Minus.* Sicily. *Shrub.*

1128. PHRYMA. *Cal.* bilabiatus 5-dent. *Sem.* 1.
1. *Leptostachia.* North America. *Peren.*
2. *Dehiscens.* Cape of Good Hope. *Peren.*

1129. SELAGO. *Cal.* 4-fid. *Cor.* tubus capillaris limbus subæqualis. *Sem.* 1 seu 2.
1. *Corymbosa.* *Shr.*
2. *Cinerea.*
3. *Polystachia.* *Shr.*
4. *Verbenacea.*
5. *Rapunculoides.* *Per.*
6. *Spuria.* *Bien.*
7. *Hirta.*
8. *Rotundifolia.*
9. *Fasciculata.* *Bien.*
10. *Polygaloides.*
11. *Ovata.* *Shr.*
12. *Coccinea.*
13. *Canescens.*
14. *Geniculata.*
15. *Divaricata.*
16. *Capitata.* *Shr.*
17. *Triquetra.*
18. *Fruticosa.* *Shr.*
19. *Hispida.*
20. *Ciliata.*
* 21. *Articulata.*
* 22. *Diffusa.*
* 23. *Scabrida.*
* 24. *Glomerata.*
* 25. *Paniculata.*
* 26. *Angustifolia.*
* 27. *Hyterophylla.*
* 28. *Pusilla.*
* 29. *Cephalofora.*
* 30. *Cordata.*
* 31. *Decumbens.*
* 32. *Bracteata.*
* 33. *Lucida.*

All from the Cape. Persoon ranks this genus under the order ANGIOSPERMIA.

ORDER II. ANGIOSPERMIA.

SECT. I. *Calyxes undivided.*

1185. ÆGINETIA. *Cal.* 1-phyll. spathaceus. *Cor.* campan. bilabiata. *Caps.* multiloc.
1. *Indica.* Hills of Malabar. *Peren.*

1161. TANAECIUM. *Cal.* cylindraceus truncatus. *Cor.* tubulosa, subæqualis 5-fida. *Rudimentum* filamenti quinti. *Bacca* corticosa maxima.
1. *Parasiticum.* Mts. of Jamaica, Caraccas. *Shr.*
2. *Jaroba.* Jamaica and Brasil. *Shrub.*
3. *Pinnatum.* Mozambique. *Shrub.*

SECT. II. *Calyxes 2-cleft.*

1184. OBOLARIA. *Cal.* 2-fid. *Cor.* 4-fida, campan. *Caps.* 1-loc. 2-valv. polysperma. *Stam.* ex divisuris corollæ.
1. *Virginica.* Virginia.

‡ 1186. OROBANCHE. *Cal.* 2-4 seu 5-fid. *Cor.* ringens. *Caps.* 1-loc. 2-valv. polysperma. *Glandula* sub basi germinis.
1. *Major.* Engl. and other pts. of Europe. *Per.*
2. *Fœtida.* Fields of Barbary. *Peren.*
3. *Caryophyllacea.* Germany, Italy, Siberia. *Per.*
4. *Cærulescens.* At the Caspian Sea. *Per.*
5. *Elatior.* England and Germany. *Peren.*
6. *Purpurea.* Cape of Good Hope. *Peren.*
7. *Minor.* England and Spain. *Peren.*
8. *Alba.* At the Caspian Sea. *Peren.*
9. *Gracilis.* Near Genoa. *Peren.*
10. *Americana.* In Carolina. *Peren.*
11. *Virginiana.* Virginia. *Peren.*

12. *Uniflora.* Virginia. *Peren.*
13. *Cærulea.* Engl. France, Germ. Siberia. *Peren.*
14. *Phelypæa.* Sandy deserts of Barbary. *Per.*
15. *Tinctoria.* Portugal, Barbary, Arabia. *Per.*
16. *Cernua.* Spain. *Peren.*
17. *Ramosa.* Engl. and other pts. of Europe. *Per.*
18. *Coccinea.* At the Caspian Sea. *Peren.*
* 19. *Capensis.* Cape of Good Hope.
* 20. *Squamosa.* Cape of Good Hope.
* 21? *Interrupta.* Cape of Good Hope.
} Thunb. *Prodr.* p. 97.
* 22. *Epithymum.* France. (*Fl. Franc.*)
* 23. *Cærulea.* England, Europe, Siberia. *Per.*
* 24? *Longiflora.* Cape of G. H. (*Herb.* of Juss.)
See the new genus PHELYPÆA.

1172. HEBENSTREITIA. *Cal.* 2-emarginatus, subtus fissus. *Cor.* 1-labiata: lab. adscendente, 4-fido. *Caps.* disperma. *Stam.* margini limbi corollæ inserta.
1. *Dentata.* *Bien.*
2. *Ciliata.* *Ann.*
3. *Integrifolia.*
4. *Erinoides.*
5. *Fruticosa.* *Shr.*
6. *Cordata.* *Shr.*
* 7. *Spicata.*
* 8. *Capitata.*
All from the Cape of Good Hope.

1149. TORENIA. *Cal.* 2-labiatus: superiore tricuspide. *Fil.* inferiora ramulo sterili. *Caps.* 2-loc.
1. *Asiatica.* India, China. *Peren.*
2. *Hirsuta.* India.
* 3. *Cordifolia.* Coromandel. (*Roxb.*)
* 4. *Scabra.* New Holland.
* 5. *Flaccida.* New Holland.
} Brown, *Prodr.* p. 440.
This genus contains also *Capraria crustacea* of Linn. and *Antirrhinum hexandrum.* Prod. 440.

1205. CASTILLEIA. *Cal.* tubulosus compressus, lab. sup. bifidum, inferius nullum. *Cor.* bilabiata, lab. inf. brevissimo 3-fido, glandulis 2 inter lacinias. *Caps.* 2-loc.
1. *Integrifolia.* New Granada. *Peren.*
2. *Fissifolia.* New Granada. *Peren.*

1211. ACANTHUS. *Cal.* bifol. 2-fid. *Cor.* 1-labiata, deflexa, 3-fida. *Caps.* 2-loc.
1. *Mollis.* Wet parts of Italy and Sicily. *Per.*
2. *Carduifolius.* Cape of Good Hope.
3. *Spinosus.* Wet parts of Italy. *Peren.*
4. *Arboreus.* Arabia Felix. *Shrub.*
5. *Dioscoridis.* Mount Libanus.
6. *Ilicifolius.* Coasts of India. *Shrub.*
7. *Ebracteatus.* India and Cochinchina. *Shrub.*
8. *Capensis.* *Shr.*
9. *Furcatus.* *Shr.*
10. *Procumbens.* *Shr.*
11. *Integrifolius.* *Shr.*
12. *Repens.* India. *Peren.*
13. *Edulis.* Arabia Felix, Persia. *Shrub.*
14. *Maderaspatensis.* India. *Peren.*
Under ACANTHUS, Persoon gives only the Sp. 1—5. Following Jussieu, he includes Sp. 6, 7, under the new genus DILIVARIA, and Sp. 8—10, 12—14, under the new genus BLEPHARIS.

1164. PREMNA. *Cal.* bilobus. *Cor.* 4-fida. *Bacca* 4-loc. *Sem.* solitaria.
1. *Integrifolia.* India. *Shrub.*
2. *Tomentosa.* India. *Shrub.*
3. *Serratifolia.* India. *Shrub.*
* 4. *Reticulata.* Jamaica.
* 5. *Flavescens* Coromandel.
* 6. *Obtusifolia.*
} Juss. *Ann. du Mus.* ii. p. 68.
* 7. *Attenuata.*
* 8. *Media.*
* 9. *Ovata.*
* 10. *Acuminata.*
* 11. *Cordata.*
Sp. 6—11 shrubby, and from New Holland. See Brown's *Prodr.* p. 512.

1160. CRESCENTIA. *Cal.* 2-part. æqualis. *Cor.* gibba. *Bac.* pedicellata, 1-loc. polysperma. *Sem.* nidulantia.
1. *Cujete.* Warm parts of America. *Shrub.*
2. *Cucurbitana.* Warm parts of America. *Shr.*

SECT. III. *Calyxes 3-cleft.*

1159. HALLERIA. *Cal.* 3 seu 5-phyll. *Cor.* 4-fida. *Bacca* supera bilocularis polysperma.
1. *Lucida.* Cape of Good Hope. *Shrub.*
2. *Elliptica.* Cape of Good Hope.

SECT. IV. *Calyxes 4-cleft.*

1189. LIPPIA. *Cal.* 4-dent. subrotundus, erectus compresso-membranaceus. *Caps.* 2-loc. 2-sperma, recta.
1. *Americana.* Vera Cruz. *Shrub.*
2. *Hemisphærica.* South America. *Shrub.*
3. *Hirsuta.* America.
4. *Umbellata.* Mexico. *Shrub.*
5. *Cymosa.* South parts of Jamaica. *Shrub.*

‡ 1134. LATHRÆA. *Cal.* 4-fid. *Glandula* depressa[illegible], ad basin suturæ germinis. *Caps.* 1-loc.
1. *Clandestina.* France, Pyrenees, Italy. *Per*[illegible].
2. *Anblatum.* In the East. *Peren.*
3. *Squamaria.* Engl. and other pts. of Eur. *Pe*[illegible]

‡ 1130. BARTSIA. *Cal.* 2-lob. marginatus, color[illegible]tus. *Cor.* minus ipso calyce colorata: lab. su[illegible] longiore. *Caps.* 2-loc.
1. *Coccinea.* Virginia, New York. *Peren.*
2. *Pallida.* Siberia and Hudson's Bay. *Pe*[illegible]
3. *Viscosa.* England, France, and Italy. *A*[illegible].
4. *Gymnandra.* At the river Oby, Dauria, a[illegible]d Kamtschatka. *Peren.*
5. *Alpina.* England, Lapland, Switzerland, t[illegible]e Vallais, and South of France.
* 6. *Spicata.* Pyrenees. (Ramond, *Bull. des Scie*[illegible])
* 7. *Trixago.* Palestine, Italy, Portugal, [illegible]d Montpellier. *Ann.*
* 8. *Versicolor.* Italy, Portugal, and the north [illegible]f Africa. (*Brotero.*)
* 9. *Maxima.* (*Rhinanthus versicolor* of Will[illegible])
* 10. *Odontites.* (*Euphrasia odont.* of Willd.) *Smi*[illegible]h.

‡ 1132. EUPHRASIA. *Cal.* 4-fid. cylindricus. *Ca*[illegible]s. 2-loc. ovato-oblonga. *Anth.* inferiores altero lo[illegible]o basi spinosæ.
1. *Latifolia.* Italy, Montpellier, and north [illegible]f Africa. *Ann.*
2. *Officinalis.* Europe. *Ann.*
3. *Salisburgensis.* Mountains of Salzburg a[illegible]d Switzerland. *Ann.*
4. *Tricuspidata.* Italy and Carniola. *Ann.*
5. *Cuneata.* New Zealand.
6. *Odontites.* Engl. and other pts. of Eur. *Ann*[illegible]n.
7. *Lutea.* South of Europe. *Ann.*
8. *Linifolia.* Italy and France. *Ann.*
9. *Viscosa.* Provence and Switzerland. *Ann.* [illegible]n.
10. *Aspera.* Guinea.
* 11. *Aspera.* Portugal. *Shrub.* (*Brotero.*)
* 12. *Minima.* Alps. (*Enc. Bot.*)
* 13? *Imbricata.* France. (*Persoon.*)
* 14. *Tenuifolia.* Portugal. *Ann.* (*Brotero.*)
* 15. *Purpurea.* Barbary. *Ann.* (*Desfont.*)
* 16. *Longiflora.* Spain. (*Cavanilles.*)
* 17. *Alpina.*
* 18. *Tetragona.*
* 19. *Collina.*
* 20. *Striata.*

* 23. *Scabra.*
* 24. *Arguta.*
om New Holland and Van Diemen's
e Brown's *Prodr.* p. 436. Per-
p. 6. under the subgenus *Odontites.*
A.
THUS. *Cal.* 4-fid. ventricosus. *Caps.*
compressa.
. In the East.
Italy and Siberia. *Ann.*
lli. Engl. and other pts. of Eur. *An.*
Palestine, Italy, Montpellier. *Ann.*
Candia. *Ann.*
. Italy and North Africa. *Ann.*
Cape of Good Hope.
Ceylon. 9. *Virginicus.* Virginia.
Hills of Armenia and Galatia. *An.*
urope. * 12. *Villosus.* Europe.
Cape of Good Hope. (*Thunberg.*)
YRUM. *Cal.* 4-fid. *Cor.* lab. sup.
argine replicato. *Caps.* 2-loc. obli-
cens. *Sem.* 2, gibba.
. Engl. and other pts. of Eur. *Ann.*
Engl. and other parts of Eur. *Ann.*
Fields in the S. of Hung. *Ann.*
m. North of Europe. *Ann.*
England and other pts. of Eur. *An.*
n, or *Alpestre.* England and other
urope. *Ann.*
Carolina. *Ann.*
A. *Cal.* 4-fid.; lobo superiore mi-
naximo emarginato.
a. North America.
. *Cal.* 4-part. *Stam.* 2 longe mi-
-angularis, 2-loc.? 2-valv. elastica
us. *Sem.* 2.
. India. *Bien.*
a. South America.
India. *Shrub.*
India. *Peren.*
a. Arabia Felix. *Shrub.*
. Arabia Felix. *Shrub.*
. In the Indies.
. India and Arabia Felix. *Shr.*
les. Arabia Felix.
India. *Shrub.*
India. *Shrub.*
Cape of Good Hope.
a. Mt. St Thomas Malabar. *Shr.*
lis. St Domingo. (Lam. *Enc.*)
Cal. 4-fid. *Cor.* laciniis omnibus
. petalo adversa. *Caps.* 3-loc.
Vera Cruz.
Cal. sub 4-dent. *Cor.* 4 fida, cam-
art.; 2 simplices. *Drupa* nuce 2-loc.
India. *Shrub.*
. Coromandel. (*Roxb.*)
Cal. obsolete 4-dent. *Cor.* limbus
ervia. *Stig.* uncinnato-refractum.
loc. lævi.
nerica. *Shrub.*
Warm parts of America. *Shrub.*
es. Arabia Felix. *Shrub.*
Warm parts of America. *Ann.*
Jamaica. *Shrub.*
St Vincent and Dominica. *Shrub.*
Warm parts of America. *Shrub.*

8. *Involucrata.* South America. *Shrub.*
9. *Recta.* Jamaica. *Shrub.*
10. *Oderata.* West Indies. *Shrub.*
11. *Lavandulacea.* *Shrub.*
12. *Salvifolia.* Cape of Good Hope. *Shrub.*
13. *Melissæfolia.* West Indies. *Shrub.*
14. *Scabrida.* West Indies. *Shrub.*
15. *Aculeata.* Warm parts of America. *Shrub.*
* 16. *Nivea.* East Indies. (*Ventenat.*)
* 17? *Reticulata.* St Domingo. (*Persoon.*)

SECT. V. *Calyxes 5-cleft.*

1209. **AVICENNIA.** *Cal.* 5-partitus. *Cor.* bilabiata: lab. superiore quadrato. *Caps.* coriacea, rhomboidea, 1-sperma.
  1. *Tomentosa.* Indies and New Holland. *Shr.*
  2. *Resinifera.* New Zealand. *Shrub.*
  3. *Nitida.* Shores of Martinique. *Shrub.*
  See Brown's *Prodromus,* p. 518.

1136. **TOZZIA.** *Cal.* 5-dent. *Caps.* 1-loc. globosa, 1-sperma.
  1. *Alpina.* Switzerland, Austria, Italy, and the Pyrenees. *Peren.*

1179. **PHAYLOPSIS.** *Cal.* 5-fid. lacinia suprema majore. *Cor.* ringens, labio superiore minimo bifido. *Caps.* 1-loc. 4-sperma siliquæformis.
  1. *Parviflora.* India. *Ann.*

‡ 1178. **LIMOSELLA.** *Cal.* 5-fidus. *Cor.* 5-fida, æqualis. *Stam.* per paria approximata. *Caps.* 1-loc. 2-valv. polysperma.
  1. *Aquatica.* Engl. and other pts. of Eur. *Per.*
  2. *Diandra.* Shores of the Cape of Good Hope.
  * 3. *Capensis.* Cape of Good Hope. (*Thunb.*)
  * 4? *Tenuifolia.* Franconia. (*Hoffm.*)
  * 5. *Australis.* New Holland and Van Diemen's Island. (Brown's *Prodr.* p. 443.)

1175. **BROWALLIA.** *Cal.* 5-dent. *Cor.* limbus 5-fid. æqualis, patens: umbilico clauso. *Antheris* 2 majoribus. *Cap.* 1-loc.
  1. *Demissa.* South America, Panama. *Ann.*
  2. *Elata.* Peru. *Ann.*
  3. *Alienata.* (*Ruellia paniculata.*) *Ann.*

1151. **BRUNFELSIA.** *Cal.* 5-dent. angustus. *Cor.* tubus longissimus. *Caps.* baccata 1-loc. polysperma, conceptaculo maximo.
  1. *Americana.* West Indies, Jamaica. *Shrub.*
  2. *Undulata.* Jamaica. *Shrub.*

1193. **HOLMSKIOLDIA.** *Cal.* 5-dent. ampliatus patentissimus. *Cor.* ringens. *Caps.* 1-loc.? polysperma.
  1. *Sanguinea,* or *Rubra.* Bengal. *Shrub.*

1170. **LINDERNIA.** *Cal.* 5-part. *Cor.* ringens labio superiore brevissimo. *Stam.* 2 inferiora dente terminali antheraque sublaterali. *Caps.* 1-loc.
  1. *Pyxidaria.* Virginia, Alsace, Silesia, Germany, Carinthia, Piedmont. *Ann.*
  2. *Dianthera.* Hispaniola.
  3. *Japonica.* In the rents of walls in Japan. *Ann.*
  * 4. *Alsinoides.* New Holland.
  * 5. *Scapigera.* New Holland.
  * 6. *Subulata.* New Holland.
  } Brown's *Prodr.* p. 441.
  Sp. 4—6 are given by Mr Brown with the following generic character. *Cal.* 5-part æqualis. *Cor.* ringens, lab. sup. retuso; inf. 3-fido, basi bicarinata. *Anth.* per paria cohærentibus. *Stig.*

bilamellatum. *Caps.* 2-loc. 2-valv. valvis integris, dissepimento parallelo, libero, placentifero. This character, which is formed from the New Holland species, does not suit Sp. 1. Species 2 and 3, certainly belong to a different genus. *Gratiola hyssopoides*, and *rotundifolia*, differ from this genus only in having two barren filaments. (*Prodr.* p. 441)

1182. Conobea. *Cal.* 5-fid. *Cor.* bilabiata. *Caps.* 1-loc. 4-valvis polysperma.
1. *Aquatica.* Banks of Guiana.

1210. Columnea. *Cal.* 5-part. *Cor.* ringens labio superiore 3-part. intermedia fornicata, supra basin gibba. *Caps.* 1-loc. *Sem.* nidulantia.
1. *Scandens.* Caribbees and Guiana. *Shrub.*
2. *Hirsuta.* Mountains of Jamaica. *Shrub.*
3. *Rutilans.* Trees in Jamaica. *Shrub.*
4. *Hispida.* Mts. in the W. of Jamaica. *Shr.*
*5. *Ovata.* San Carlos in Chiloe. (*Cavan.*)
*6. *Stellata.* Cochinchina. (*Loureiro.*)

1180. Vandellia. *Cal.* sub 4-fid. *Cor.* ringens. *Fil.* 2 exteriora e disco labi corollæ. *Anth.* per paria connexæ. *Caps.* 1-loc. polysperma.
1. *Diffusa.* Montserrat and Santa Cruz.
2. *Pratensis.* From Trinidad to Brasil. *Peren.*

1181. Russelia. *Cal.* 5-phyll. *Cor.* bilabiata tubo elongato. *Stig.* globosum. *Caps.* 1-loc. 2-valv. polysperma.
1. *Sarmentosa.* Thick woods about the Havannah. *Shrub.*
*2. *Rotundifolia.* Near Acapulco. (*Cavan.*)
*3? *Alternifolia.* Peru. *Shrub.* (*Juss.*)

1213. Alectra. *Cal.* bilabiatus, labio superiore 2-fido, inferiore trifido. *Cor.* infundib. *Fil.* barbata. *Caps.* 2-loc. didyma. *Sem.* solitaria.
1. *Capensis.* Cape of Good Hope at the banks of rivers. *Ann.*

1143. Gesneria. *Cal.* 5-fid. germini insidens. *Cor.* incurva recurvaque. *Caps.* infera, 2-loc.
1. *Humilis.* South America. *Shrub.*
2. *Corymbosa.* Jamaica. *Shrub.*
3. *Acaulis.* Jamaica. *Shrub.*
4. *Pumila.* Jamaica. *Peren.*
5. *Craniolaria.* Hispaniola. *Shrub.*
6. *Grandis.* Jamaica. *Shrub.*
7. *Tomentosa.* At rivers in S. America. *Shr.*
8. *Scabra.* Jamaica. *Shrub.*
9. *Exserta.* Jamaica. *Shrub.*
10. *Calycina.* Jamaica. *Shrub.*
11. *Ventricosa.* Jamaica, Montserrat, and Dominica. *Shrub.*
*12. *Tubiflora.* Panama. } Cavan. *Ic.*
*13. *Verticillata.* South America. } vi. p. 61.

1141. Cyrilla, or Achimenes of Persoon. *Cal.* superius 5-phyll. *Cor.* declinata infundib. *Limbus* planus 5-part. subæqualis. *Rudimentum* filamenti quinti. *Caps.* semibiloc.
1. *Pulchella.* Jamaica. *Peren.*

‡ 1152. Scrophularia. *Cal.* 5-fid. *Cor.* subglobosa, resupinata. *Caps.* 2-loc.
1. *Marilandica.* Virginia. *Peren.*
2. *Nodosa.* Engl. and other pts. of Europe. *Per.*
3. *Aquatica.* England, Switz. France. *Bien.*
4. *Auriculata.* Spain and Algiers. *Peren.*
5. *Appendiculata.* Tunis. *Peren.*
6. *Scorodonia.* England, Portugal, Jersey, and Italy. *Peren.*
7. *Glabrata.* Canary Isles. *Bien.*
8. *Betonicifolia.* Portugal. *Peren.*
9. *Orientalis.* In the East. *Peren.*
10. *Frutescens.* Portugal and Tunis. *Shrub.*
11. *Rupestris.* Rocks of Taurida. *Peren.*
12. *Heterophylla.* Candia. *Shrub.*
13. *Altaica.* Altaian Mountains. *Peren.*
14. *Vernalis.* England, Italy, Switzerland and Austria. *Bien.*
15. *Arguta.* Madeira, Teneriffe. *Ann.*
16. *Trifoliata.* Africa and Corsica. *Shrub.*
17. *Sambucifolia.* Spain, Portugal, the East. *Per.*
18. *Mellifera.* Shores of Barbary. *Peren.*
19. *Hispida.* Tlemsen in Barbary. *Peren.*
20. *Canina.* Switzerland, south of France, Italy, Taurida, and the East. *Ann.*
21. *Lucida.* In the East, Candia, and Naples. *Per.*
22. *Variegata.* Near the Caspian. *Shrub.* *Per.*
23. *Chinensis.* China.
24. *Meridionalis.* New Granada.
25. *Coccinea.* Vera Cruz.
26. *Peregrina.* Italy. *Ann.*
*27. *Scopolii.* Carinthia, Austr. (Scop. *Fl. Car.*).
*28? *Cordata.* Hungary, Denmark. (*Pl. Hung.*)
*29. *Pinnatifida.* Portugal. *Shrub.* (*Brotero.*)

1183. Stemodia. *Cal.* 5-part. *Cor.* bilabiata. *Stam.* 4: filamentis singulis bifidis diantheris. *Caps.* 2-loc.
1. *Maritima.* Jamaica. *Peren.*
2. *Durantifolia.* Jamaica.
3. *Ruderalis.* India.
4. *Camphorata.* Ceylon.
5. *Aquatica.* Near Tranquebar.
*6. *Viscosa.* Coromandel. *Ann.* (*Roxb.*)

1190. Achimenes. *Cal.* 5-part. *Cor.* subæqualis, limbo plana 4-fido. *Anth.* connexæ. *Caps.* 2-loc.
1. *Sesamoides.* India.

1153. Celsia. *Cal.* 5-part. *Cor.* rotata. *Fil.* barbata. *Caps.* 2-loc.
1. *Orientalis.* Cappadocia, Armenia. *Ann.*
2. *Arcturus.* Candia. *Bien.*
3. *Coromandelina.* India. *Ann.*
4. *Cretica.* Candia and North of Africa. *Bien.*
5. *Betonicifolia.* Fields of Algiers. *Bien.*
*6. *Heterophylla.* *7. *Lanceolata.* Euphrates.

1154. Hemimeris. *Cal.* 5-part. *Cor.* rotata, lacinia 1 major obcordata. *Fossula* laciniarum nectarifera. *Fil.* glabra. *Caps.* 2-loc. loculo altero gibbosiore.
1. *Montana.* Cape of Good Hope.
2. *Sabulosa.* Cape of Good Hope.
3. *Diffusa.* Cape of Good Hope.
4. *Urticifolia.* South America. *Shrub.*
5. *Coccinea*; or *linearis.* South America. *Shr.*
*6. *Unilabiata.* Cape of Good Hope. (*Thunb.*)
*7. *Caulialata.* Peru. *Ann.* } *Fl. Per.*
*8. *Acutifolia.* Hills of Peru. *Per.* } p. 1152.
*9. *Incisifolia.* Conception. *Ann.* }
*10. *Procumbens.* Peru. *Ann.* }

‡ 1177. Sibthorpia. *Cal.* 5-part. *Cor.* 5-part. æqualis. *Stam.* paribus remotis. *Caps.* compressa, orbicularis, 2-loc. dissepimento transverso.
1. *Europæa.* England and Portugal.
*2. *Africana.* Cape of Good Hope. (*Gmel.*)

1169. Capraria. *Cal.* 5-part. *Cor.* campan. 5-fida, acuta. *Caps.* 2-valv. 2-loc. polysperma.
1. *Biflora.* Curaçoa, Peru, W. Indies. *Peren.*
2. *Lucida.* Cape of Good Hope. *Bien.*
3. *Lanceolata.* Cape of Good Hope. *Shrub.*
4. *Semiserrata.* At St. Martha in S. America.

5. *Undulata.* Cape of Good Hope. *Shrub.*
6. *Humilis.* East Indies. *Ann.*
*7. *Rigida.* Cape of Good Hope. (*Thunb.*)
*8. *Multifida.* North America. (*Mich.*)

‡1155. DIGITALIS. *Cal.* 5-part. *Cor.* campan. 5-fida, ventricosa. *Caps.* ovata, 2-loc.

1. *Purpurea.* Engl. and other pts. of Eur. *Bien.*
2. *Minor.* Spain. *Peren.*
3. *Thapsi.* Spain. *Per.* 4. *Parviflora.* *Bien.*
5. *Lutea.* Sandy parts of France and Italy. *Per.*
6. *Ambigua*, or *Ochroleuca.* Austria, Switzerland, and Germany. *Peren.*
7. *Ferruginea.* Italy. *Peren.*
8. *Orientalis.* Armenia and Galatia.
9. *Lanata.* Hungary and Greece. *Peren.*
10. *Obscura.* Spain. *Peren.*
11. *Canariensis.* Canary Isles. *Shrub.*
12. *Sceptrum.* Woods of Madeira. *Shrub.*

1157. BIGNONIA. *Cal.* 5-fid. cyathiformis. *Cor.* fauce campan. 5-fida, subtus ventricosa. *Siliqua* 2 loc. *Sem.* membranaceo-alata.

1. *Catalpa.* Japan and Carolina. *Shrub.*
2. *Longissima.* West Indies. *Shrub.*
3. *Tomentosa.* Japan. *Shrub.* 4. *Linearis.*
5. *Sempervirens.* Virginia. *Shrub.*
6. *Tenuisiliqua.* South America. *Shrub.*
7. *Cassinoides.* Near Rio de Janeiro. *Shrub.*
8. *Obtusifolia.* Brasil. *Shrub.*
9. *Microphylla.* Hispaniola. *Shrub.*
10. *Unguis.* Barbadoes and St Domingo. *Shr.*
11. *Staminea.* Hispaniola. *Shrub.*
12. *Equinoctialis.* Cayenne. *Shrub.*
13. *Alliacea.* Woods of Guiana and Cayenne. *Shr.*
14. *Spectabilis.* Island of Santa Cruz. *Shrub.*
15. *Laurifolia.* Cayenne. *Shrub.*
16. *Rigescens.* Caraccas. *Shrub.*
17. *Lactiflora.* Island of Santa Cruz. *Shrub.*
18. *Paniculata.* Warm parts of America. *Shr.*
19. *Elongata.* South America. *Shrub.*
20. *Corymbifera.* South America. *Shrub.*
21. *Crucigera.* Virginia and S. America. *Shr.*
22. *Grandifolia.* Caraccas. *Shrub.*
23. *Capreolata.* North America. *Shrub.*
24. *Pubescens.* Campechy, Mexico. *Shrub.*
25. *Villosa.* St Martha in S. America. *Shrub.*
26. *Echinata.* Carthagena and Guiana. *Shrub.*
27. *Heterophylla.* Woods of Guiana. *Shrub.*
28. *Triphylla.* Vera Cruz. *Shrub.*
29. *Mollis.* Cayenne. *Shrub.*
30. *Hirsuta.* East Indies. *Shrub.*
31. *Pentaphylla.* Jamaica, Caribbees. *Shrub.*
32. *Orbiculata.* Woody parts of Carthagena. *Shr.*
33. *Chrysantha.* Caraccas. *Shrub.*
34. *Fluviatilis.* Guiana. *Shrub.*
35. *Leucoxylon.* Jamaica. *Shrub.*
36. *Serratifolia.* Trinidad. *Shrub.*
37. *Radiata.* Peru. *Shrub.*
38. *Radicans.* Carolina, Florida, Virginia. *Shr.*
39. *Grandiflora.* China and Japan. *Shrub.*
40. *Stans.* Warm parts of America. *Shrub.*
41. *Africana.* Senegal. *Shrub.*
42. *Bijuga.* Madagascar. *Shrub.*
43. *Racemosa.* Madagascar. *Shrub.*
44. *Compressa.* East Indies. *Shrub.*
45. *Spathacea.* Java, Malabar, Ceylon. *Shrub.*
46. *Chelonoides.* East Indies. *Shrub.*
47. *Variabilis.* Caraccas. *Shrub.*
48. *Alba.* At the R. Sinemaria in Guiana. *Shr.*
49. *Peruviana.* Peru. *Shrub.*
50. *Indica.* India. *Shrub.*
51. *Longifolia.* Sandy parts of India. *Shrub.*
52. *Procera.* Woods of Guiana. *Shrub.*
53. *Cœrulea.* Carolina. *Shrub.*
54. *Brasiliana.* Brasil. *Shrub.*
*55. *Chica.* Beside the Rivers Cassiquiare and Oronoco. (*Humboldt.*)
*56. *Longiflora.* Hispaniola. *Shrub.* (*Cav.*)
*57. *Latifolia.* Cayenne.
*58. *Pyramidata.* Cayenne.
*59. *Candicans.* Cayenne.
} Richard, *Act. Soc. Hist. Nat. Par.*
*60. *Pilulifera.* Guiana. (*Aublet.*)
*61. *Incarnata.* Guiana. (*Aublet.*)
*62. *Fulva.* South America. (*Cavan.*)
*63. *Capensis.* Cape of Good Hope. (*Thunb.*)
*64. *Pandorea.* New Holland. (*Vent.*)

1156. INCARVILLEA. *Cal.* 5-fid. *Cor.* tubulosa, fauce ventricosa, 5-fida, inæqualis. *Anth.* 2 biaristatæ 2 muticæ. *Siliqua* 2-loc. *Sem.* membranaceo-alata.

1. *Sinensis.* China.

1195. RUELLIA. *Cal.* 2-part. *Cor.* subcampan. *Stam.* per paria approximata. *Caps.* dentibus elasticis dissiliens.

1. *Blechum.* Jamaica. *Ann.*
2. *Blechioides.* Mts. in the W. of Jamaica. *Shr.*
3. *Angustifolia.* Caribbees.
4. *Ovata.* Mexico. *Peren.*
5. *Strepens.* Virginia, Carolina. *Peren.*
6. *Patula.* East Indies. *Shrub.*
7. *Pallida.* Arabia Felix. 8. *Fragrans.* Otaheite.
9. *Lactea.* Mexico. *Peren.*
10. *Clandestina.* Barbadoes and Santa Cruz. *Per.*
11. *Violacea.* Meadows of Guiana. *Peren.*
12. *Rubra.* Banks of Guiana. *Peren.*
13. *Macrophylla.* St Martha, S. America.
14. *Guttata.* Mt. Chadra in Arabia Felix. *Shr.*
15. *Imbricata.* Arabia Felix, West Indies, Bourbon. *Shrub.*
16. *Aristata.* Arabia Felix. *Shrub.*
17. *Intrusa.* Higher mountains of Arabia Felix.
18. *Paniculata.* Dry hills in the south of Jamaica. *Peren.*
19. *Tuberosa.* Jamaica. *Peren.*
20. *Tentaculata.* India.
21. *Biflora.* Carolina. *Peren.*
22. *Crispa.* India. *Peren.*
23. *Fasciculata.* Ceylon, near the hot baths of Trincomalee.
24. *Mollissima.* Madagascar.
25. *Undulata.* India. 26. *Involucrata.* India. *Per.*
27. *Repanda.* Java. 28. *Ringens.* India.
29. *Coccinea.* S. America. 30. *Repens.* India.
31. *Uliginosa.* Tranquebar. *Ann.*
32. *Pilosa.* Cape of Good Hope.
33. *Hirta.* India.
34. *Depressa.* Cape of Good Hope.
35. *Cordifolia.* India. *Shrub.*
36. *Secunda.* East Indies.
37. *Reptans.* Island of Tanna.
38. *Japonica.* Japan.
39. *Alopecuroidea.* Montserrat.
40. *Barbata.* India. 41. *Balsamea.* India. *Ann.*
42. *Salicifolia.* India.
43. *Longiflora.* Arabia Felix. *Shrub.*
44. *Difformis.* India.
45. *Rupestris.* Hispaniola. *Peren.*

Class XIV. Didynamia.

46. *Scabrosa.* Hispaniola. *Peren.*
* 47. *Formosa.* Mts. of Peru. *Shr.* (*Humboldt.*)
* 48. *Grandiflora.* Arabia Felix.
* 49. *Australis.* Australasia. (*Cavan.*)
* 50. *Spinescens.* * 51. *Ciliaris.*
* 52. *Pubescens.* * 53. *Setigerus.*
* 54. *Dulcis.* Chili.
* 55. *Ocymoides.* Mexico. See Cavan. *Ic.*
* 56. *Microphylla.* New Spain. vi. p. 62.
* 57. *Rubicaulis.* Mexico.
* 58. *Inflata.* Cayenne. (Richard, *Act. Soc. Par.*)
* 59. *Varians.* Coromandel. (*Ventenat.*)
* 60. *Flava.* East Indies. *Herb.* of
* 61. *Humifusa.* Pralin Isles. Juss.
* 62. *Elongata.* Oware in Africa. (*Beauvois.*)
* 63. *Obliqua.* Java. (*Herb.* of Juss.)
* 64. *Australis.* * 65. *Pumilio.*
* 66. *Acaulis.* * 67. *Bracteata.*

Sp. 64—67 from New Holland, are given by Mr Brown with the following character. "*Cal.* 5-part. (nunc profunde 5-fid.) æqualis. *Cor.* infundib. limbo 5-fido, parum inæquali, patenti. *Stam.* 4 antherifera inclusa. *Anth.* loculis parallelis, muticis. *Ovarii* loculi polyspermi. *Caps.* teretiuscula, subsessilis, dissepimento adnata. *Sem.* retinacula subtensa." Under this character he includes Sp. 4, 5, 6, 10, 18, 36, 37. See particularly *Prodr.* p. 478.

1174. Buchnera. *Cal.* 5 dent. obsolete. *Cor.* limbus 5-fidus æqualis: lobis cordatis. *Caps.* 2-loc.

1. *Americana.* Virginia, Canada.
2. *Elongata.* Jamaica, Vera Cruz, Guiana. *Ann.*
3. *Cernua.* Cape of Good Hope. *Shrub.*
4. *Cuneifolia.* Cape of Good Hope.
5. *Cordifolia.* Near Tanschaur.
6. *Grandiflora.* South America.
7. *Ethiopica.* Cape of Good Hope. *Shrub.*
8. *Viscosa.* Cape of Good Hope. *Shrub.*
9. *Capensis.* Cape of Good Hope. *Ann.*
10. *Humifusa.* High mts. in Arabia Felix.
11. *Asiatica.* Ceylon and China. *Ann.*
12. *Euphrasioides.* India.
13. *Gesneroides.* India. *Peren.*
14. *Pinnatifida.* Cape of Good Hope.
* 15. *Bilabiata.* Cape of Good Hope. (*Thunb.*)
* 16. *Urticifolia.* * 21. *Ramosissima.*
* 17. *Tetragona.* * 22. *Asperata.*
* 18. *Gracilis.* * 23. *Curviflora.*
* 19. *Linearis.* * 24. *Parviflora.*
* 20. *Tenella.*

Sp. 16—24 from New Holland, are given by Mr Brown with the following character. "*Cal.* tubulosus, 10-striatus, 5-dent. æqualis. *Cor.* v. hypocraterif. limbo 5-part. subæquali; v. bilabiata. *Stam.* didynama inclusa. *Anth.* lineares, integræ. *Stig.* subclavatum emarginatum. *Caps.* 2-loc. 2-valv. valvis medio septiferis. *Placenta* columnaris demum libera." Under this character he also includes Sp. 1, 2, 11.

1173. Erinus. *Cal.* 5-phyll. *Cor.* limbus 5-fidus, æqualis; lobis emarginatis; labio super. brevissimo reflexo. *Caps.* 2-loc.

1. *Alpinus.* 7. *Tristis.*
2. *Maritimus.* * 8. *Æthiopicus.*
3. *Africanus.* * 9. *Villosus.*
4. *Lychnidea.* * 10. *Simplex.*
5. *Fragrans.* * 11. *Patens.*
6. *Peruvianus.* * 12. *Selaginoides.*
* 13. *Tomentosus.* * 14. *Incisus.*

All from the Cape except Sp. 1. from the Pyrenees and Switzerland, and Sp. 6. from Peru.

1163. Petrea. *Cal.* 5-part. maximus, coloratus. *Cor.* rotata. *Caps.* 2 loc. in fundo calycis. *Sem.* solitaria.

1. *Volubilis.* Warm pts. of America. *Shrub.*

1171. Manulea. *Cal.* 5-part. *Cor.* limbo 5-part. subulato; laciniis superioribus 4 magis connexis. *Caps.* 2-loc. polysperma.

1. *Cheiranthus.* *Ann.* 17. *Microphylla.*
2. *Corymbosa.* * 18. *Linifolia.*
3. *Altissima.* * 19. *Revoluta.*
4. *Pinnatifida.* * 20. *Villosa.*
5. *Plantaginis.* * 21. *Æthiopica.*
6. *Capitata.* * 22. *Pedunculata.*
7. *Antirrhinoides.* * 23. *Alternifolia.*
8. *Thyrsiflora.* * 24. *Incana.*
9. *Argentea.* * 25. *Divaricata.*
10. *Tomentosa.* *Bien.* * 26. *Virgata.*
11. *Rubra.* * 27. *Cephalotes.*
12. *Capillaris.* * 28. *Hirta.*
13. *Cuneifolia.* * 29. *Hispida.*
14. *Cærulea.* * 30. *Cordata.*
15. *Heterophylla.* * 31. *Oppositifolia.*
16. *Integrifolia.* * 32. *Fœtida.*

All from the Cape excepting Sp. 21. from Ethiopia, and Sp. 23. from New Holland.

‡ 1144. Antirrhinum. *Cal.* 5-phyll. *Corollæ* basis deorsum prominens, nectarifera, faux palato 2-part. convexo clausa. *Caps.* 2-loc.

1. *Cymbalaria.* England, Germany, Switzerland, France, and at Haerlem, &c. *Peren.*
2. *Pilosum.* Pyrenees.
3. *Lanigerum.* Near ancient Carthage. *Ann.*
4. *Dentatum*, or *Scariosum.* Tunis. *Ann.*
5. *Heterophyllum.* Morocco. *Ann.*
6. *Elatine.* Engl. Germ. France, Italy. *Ann.*
7. *Elatinoides.* Near Mascar. *Ann.*
8. *Spurium.* Engl. Germ. France, Italy. *Ann.*
9. *Cirrhosum.* Egypt. *Ann.*
10. *Egyptiacum.* Egypt. *Ann.*
11. *Fruticosum.* Near Caffa. *Shrub.*
12. *Hexandrum.* Otaheite.
13. *Triphyllum.* Mts. near Syracuse. *Ann.*
14. *Latifolium.* Near Mascar and Tlemsen. *Ann.*
15. *Virgatum.* Algiers. *Ann.*
16. *Triornithophorum.* Portugal and America.
17. *Purpureum.* Base of Mt. Vesuvius. *Peren.*
18. *Versicolor.* South of France. *Ann.*
19. *Linarioides.* South of Europe.
20. *Repens.* England, France, and Italy. *Peren.*
21. *Monspessulanum.* France. *Peren.*
22. *Sparteum.* Spain. *Bien.*
23. *Bipunctatum.* Fields of Spain and Italy. *Ann.*
24. *Amethystinum.* Spain and Portugal. *Ann.*
25. *Laxiflorum.* Algiers. *Ann.*
26. *Triste.* Gibraltar. *Peren.*
27. *Hælava.* Deserts of Egypt. *Ann.*
28. *Thymifolium.* Shores of Bayonne.
29. *Supinum.* France, Spain, and Italy. *Ann.*
30. *Simplex.* South of Europe. *Ann.*
31. *Arvense.* France, Italy, and Germany. *Ann.*
32. *Pelisserianum.* France and Italy. *Ann.*
33. *Parviflorum.* In the East and Algiers. *Ann.*
34. *Flavum.* Fields of Barbary. *Ann.*
35. *Saxatile.* Spain. *Peren.*
36. *Micranthum.* Cultivated parts of Spain. *Ann.*

Class XIV. Didynamia.

37. *Viscosum.* Spain. *Ann.*
38. *Aparinoides.* Mount Atlas. *Peren.*
39. *Multicaule.* In Sicily and the East. *Ann.*
40. *Reticulatum.* North of Africa. *Peren.*
41. *Marginatum.* Mt. Atlas near Tlemsen. *Per.*
42. *Glaucum.* S. of Europe, and the East. *Ann.*
43. *Alpinum.* Switzerland, Austria, Styria, and the Pyrenees. *Bien.*
44. *Aphyllum.* Cape of Good Hope.
45. *Bicorne.* Cape of Good Hope. *Ann.*
46. *Macrocarpum.* Cape of G. Hope. *Peren.*
47. *Villosum.* Spain. *Peren.*
48. *Origanifolium.* Pyrenees and Marseilles. *Ann.*
49. *Flexuosum.* Near Tunis. *Peren.*
50. *Minus.* Engl. and other parts of Eur. *Ann.*
51. *Dalmaticum.* Candia, Armenia. *Ann.*
52. *Hirtum.* Spain. *Ann.*
53. *Genistifolium.* Siberia, Lower Austria, Switzerland, and near Dresden. *Peren.*
54. *Junceum.* Spain. *Ann.*
55. *Linaria.* Engl. and other parts of Eur. *Per.*
56. *Linifolium.* Shores of Italy. *Peren.*
57. *Lagopodioides.* Siberia.
58. *Canadense.* Virginia and Canada. *Ann.*
59. *Chalepense.* Italy and Montpellier. *Ann.*
60. *Reflexum.* Barbary. *Ann.*
61. *Pedunculatum.* Spain.
62. *Majus.* Engl. and other parts of Eur. *Bien.*
63. *Siculum.* Sicily. *Peren.*
64. *Sempervirens.* Pyrenees. *Shrub.*
65. *Orontium.* Engl. and other pts. of Eur. *Ann.*
66. *Papilionaceum.* Persia.
67. *Asarina.* Geneva. *Peren.*
68. *Molle.* Spain. *Peren.*
69. *Pinnatum.* Cape of Good Hope.
70. *Unilabiatum.* Cape of Good Hope.
* 71. *Bipartitum.* Near Mogadore. (Vent. *Fl.Cels.*)
* 72? *Pyrenaicum.* Pyrenees. (*Fl. Franc.*)
* 73. *Gracile.* Near Grenoble.
* 74. *Elegans.* Spain. *Ann.* } Desfont. *Cat.*
* 75. *Pubescens.* *Ann.* } p. 65.
* 76. *Lusitanicum.* Coasts of Portugal. (*Brotero.*)
* 77. *Patens.* Cape of Good Hope. } Thunb.
* 78. *Barbatum.* Cape of Good Hope. } *Prodr.*
* 79. *Frutescens.* Cape of Good Hope. } p. 105.
* 80. *Cæsium.* Near Madrid. (*Persoon.*)
* 81. *Pyramidale.* Armenia. (*Encyc. Bot.*)
* 82. *Saphirinum.* Portugal. (*Brotero.*)

See the new genus ORONTIUM.

1145. ANARRHINUM. *Cal.* 5-phyll. *Cor.* basis deorsum prominens nectarifera, lab. inf. planum palato destitutum, faux pervia. *Caps.* 2-loc. multivalvis.

1. *Bellidifolium.* Montpellier, Germany. *Bien.*
2. *Pedatum.* Hills of Algiers.
3. *Fruticosum.* Mt. Atlas near Tlemsen. *Shrub.*
4. *Crassifolium.* Valentia. *Ann.*
5. *Tenellum.* Mount Ayora in Valentia. *Ann.*
* 6. *Duriminium.* N. of Portugal. (*Brotero.*)

1138. GERARDIA. *Cal.* 5-fid. *Cor.* 2-labiata: lab. inf. 3-part.: lobis emarginatis: medio 2-part. *Caps.* 3-loc. dehiscens.

1. *Tuberosa.* Warm parts of America.
2. *Delphinifolia.* India. *Ann.*
3. *Purpurea.* Virginia and Canada. *Ann.*
4. *Tenuifolia.* North America.
5. *Tubulosa.* Cape of Good Hope.
6. *Nigrina.* Cape of Good Hope.
7. *Flava.* Virginia and Canada.
8. *Scabra.* Cape of Good Hope.
9. *Pedicularia.* Virginia and Canada.
10. *Japonica.* Japan. 11. *Glutinosa.* China.
12. *Sessiliflora.* Cape of Good Hope.
* 13. *Auriculata.* Illinois. } Michaux,
* 14. *Cassioides.* Carolina. } *Fl. Amer.*

‡ 1137. PEDICULARIS. *Cal.* 5-fid. *Caps.* 2-loc. mucronata, obliqua. *Sem.* tunicata.

1. *Palustris.* Eng. and other pts. of Eur. *Ann.*
2. *Sylvatica.* Eng. and other pts. of Eur. *Ann.*
3. *Euphrasioides.* At the River Lena in Siberia, and in North America. *Peren.*
4. *Myriophylla.* Altaian and Daurian Mts. *Per.*
5. *Spicata.* Lakes on the Mts. of Dauria. *Per.*
6. *Resupinata.* Siberia. *Peren.*
7. *Sceptrum Carolinum.* Sweden, Prussia, Mountains of Salzburg, and Hungary. *Peren.*
8. *Tristis.* Siberia. *Ann.*
9. *Lapponica.* Lapland and Norway. *Peren.*
10. *Asplenifolia.* Mts. of Salzburg. *Peren.*
11. *Flava.* Siberia. *Peren.*
12. *Striata.* Dauria. *Peren.*
13. *Sudetica.* Sudetes Mts. and in Siberia. *Per.*
14. *Recutita.* Mountains of Switzerland, Italy, Austria, and Salzburg. *Peren.*
15. *Elata.* At the R. Catsha in Siberia. *Peren.*
16. *Foliosa.* Switzerland, Dauphiny, Hungary, and on Mount Cenis. *Bien.*
17. *Canadensis.* North America. *Peren.*
18. *Groenlandica.* Greenland. *Peren.*
19. *Incarnata.* Mts. of Switzerland, Dauphiny, Savoy, Salzburg, Carinthia, and Austria. *Ann.*
20. *Uncinata.* At the R. Angora in Siberia. *Per.*
21. *Interrupta.* Siberia. *Peren.*
22. *Verticillata.* Austria, Switzerland, Savoy, Dauphiny, and Siberia.
23. *Ascaulis.* Mountains of Carniola and Carinthia. *Peren.*
24. *Flammea.* Mountains of Lapland, Norway, Greenland, Switzerland, Austria, Mount Cenis, mountains of Dauria, and at the lake Baikal. *Peren.*
25. *Hirsuta.* Mountains of Lapland. *Peren.*
26. *Rosea.* Mountains of Carinthia, Italy and France, and in Mount Cenis. *Peren.*
27. *Rostrata.* Mountains of France, Italy, Savoy, Switzerland, Salzburg, and Austria. *Per.*
28. *Tuberosa.* Mountains of France, Switzerland, and Italy. *Peren.*
29. *Gyroflexa.* Mountains of France, Switzerland, and Italy. *Peren.*
30. *Fasciculata.* Mountains of Italy. *Peren.*
31. *Rubens.* Middle of Siberia. *Peren.*
32. *Compacta.* Meadows of Siberia. *Peren.*
33. *Achilleifolia.* Siberia. *Peren.*
34. *Comosa.* Mts. in the S. of France and Italy, and in meadows in Russia and Siberia. *Per.*

1194. MIMULUS. *Cal.* 5-dent. prismaticus. *Cor.* ringens: labio superiore lateribus replicato. *Caps.* 2-loc. polysperma.

1. *Ringens.* Virginia and Canada. *Peren.*
2. *Glutinosus.* *Shrub.*
3. *Alatus.* North America. *Peren.*
4. *Luteus.* Peru.
* 5. *Gracilis,* New Holland. } See Brown's
* 6. *Repens.* New Holland and Van Diemen's Island. } *Prodr.* p. 439.

Class XIV. Didynamia.

1188. DODARTIA. *Cal.* 5-dent. *Cor.* lab. inf. duplo longius. *Caps.* 2-loc. globosa.
1. *Orientalis.* Mt. Ararat and Tartary. *Per.*
2. *Indica.* India.

1139. CHELONE. *Cal.* 5-phyll. *Cor.* ringens ventricosa. *Rudim.* fil. quinti inter suprema stamina glabrum. *Caps.* 2-loc.
1. *Glabra.* Virginia and Canada. *Peren.*
2. *Obliqua.* Virginia and Canada. *Peren.*
3. *Ruellioides.* Straits of Magellan. *Peren.*
4. *Barbata.* Kingdom of Mexico. *Peren.*

1140. PENTSTEMON. *Cal.* 5-phyll. *Cor.* bilabiata ventricosa. *Rudim.* fil. quinti superne barbatum. *Caps.* 2-loc.
1. *Hirsuta.* Virginia.
2. *Pubescens.* Virginia. *Peren.*
3. *Lævigata.* North America. *Peren.*
4. *Campanulata.* Kingdom of Mexico. *Per.*

Persoon gives this as a subgenus under CHELONE.

1191. SESAMUM. *Cal.* 5-part. *Cor.* campan. 5-fida: lobo infimo majore. *Rudim.* fil. quinti. *Stig.* lanceolatum. *Caps.* 4-loc.
1. *Orientale.* Ceylon and Malabar. *Ann.*
2. *Luteum.* Groves of Nidrapur in India.
3. *Indicum.* India. *Ann.*
4. *Laciniatum.* Near Hydrabad in India.

1142. GLOXINIA. *Cal.* superus 5-phyll. *Cor.* campan. limbo obliquo. *Fil.* cum rudim. quinti receptaculo inserta.
1. *Maculata.* Carthagena in America. *Peren.*

1147. TOURRETIA. *Cal.* 2-lab. *Cor.* lab. inf. nullum, cujus loco denticuli 1. *Caps.* echinata 4-loc. 2-valv.
1. *Lappacea.* Peru. *Ann.*

1148. MARTYNIA. *Cal.* 5 fid. *Cor.* ringens. *Caps.* lignosa, corticata, rostro hamato, 4-loc. 2-valv.
1. *Diandra.* Vera Cruz. *Ann.*
2. *Carniolaria.* Carthagena in America. *Ann.*
3. *Proboscidea.* River Mississippi. *Ann.*
4. *Longiflora.* Cape of Good Hope. *Ann.*

1204. MAURANDIA. *Cal.* 5-part. *Cor.* campan. inæqualis. *Fil.* basi callosa. *Caps.* 2 coalitæ apice semi-5-valv.
1. *Semperflorens.* Mexico. *Peren.*

1200. MILLINGTONIA. *Calycis* margo 5-dent. reflexus. *Cor.* tubo longissimo, limbo 4-fido. *Anth.* 2-part. vaginantes. *Siliqua?*
1. *Hortensis.* *Shrub.*

1192. TORTULA. *Cal.* 5-part. *Cor.* tubus spiralis. *Nuces* 2, 2-loc. externæ rugosæ.
1. *Aspera.* India.

This plant is given under the new genus PRIVA, by Persoon.

1214. PEDALIUM. *Cal.* 5-part. *Cor.* subringens: limbo 5-fido. *Nux* suberosa 4-gona, angulis spinosa, 2-loc. *Sem.* 2.
1. *Murex.* Ceylon and Malabar. *Ann.*

‡ 1176. LINNÆA. *Cal.* duplex. *Fruct.* 1-phyll. floris 5-part. superus. *Cor.* campan. *Bac.* sicca, 3-loc.
1. *Borealis.* Woods of Scotland, Sweden, Germany, Siberia, Russia and Canada. *Shr.*

This genus is given under the class TETRANDRIA, by Persoon.

1167. CORNUTIA. *Cal.* 5-dent. *Stam.* cor. longiora. *Styl.* longissimus. *Bac.* 1-sperma.
1. *Pyramidata.* Caribbees and Campechy. *Shr.*
2. *Punctata.* Warm parts of America. *Shr.*

1199. OVIEDA. *Cal.* 5-fid. *Cor.* tubus cylindricus, superus longissimus. *Bac.* globosa, 4-sperma.
1. *Spinosa.* Mts. of Hispaniola. *Shrub.*
2. *Mitis.* Java. *Shrub.*
* 3. *Ovalifolia.* Pondicherry. (Juss. *Ann. Mus.*)

1207. AMASONIA. *Cal.* 5-fid. *Cor.* tubulosa, limbus parvus 5-fid. *Bac.* 4-sperma.
1. *Erecta.* Surinam.
2. *Punicea.* Trinidad. *Shrub.*

1150. BESLERIA. *Cal.* 5-part. *Bac.* subglobosa, polysperma.
1. *Melittifolia.* Wet parts of Martinique and Guiana. *Shrub.*
2. *Lutea.* Jamaica and Guiana. *Shrub.*
3. *Violacea.* Woods of Guiana. *Shrub.*
4. *Incarnata.* Guiana. *Peren.*
5. *Serrulata.* West Indies. *Shrub.*
6. *Cristata.* Wet woods of Martinique and Guiana. *Shrub.*
7. *Coccinea.* Marshy woods of Guiana. *Shrub.*
8. *Bivalvis.* Surinam.
* 9? *Sanguinea.* St Domingo. (*Persoon.*)

1208. BONTIA. *Cal.* 5-part. *Cor.* bilabiata: lab. inf. 3-part. revoluta. *Drupa* ovata, 1-sperma. Apice obliquo. *Sem.* 1.
1. *Daphnoides.* Antilles. *Shrub.*

1166. SPIELMANNIA. *Cal.* 5-fid. *Cor.* limbus 5-fid. fauce villis clausa. *Stig.* uncinatum. *Drupa* nuce 2-loc. tuberculata.
1. *Africana.* Cape of Good Hope. *Shrub.*

This genus is given under TETRANDRIA by Persoo

1206. VITEX. *Cal.* 5-dent. *Cor.* limbus 6 fid. *Dr pa* 1-sperma, nuce 4-loc.
1. *Ovata.* Japan, China, and N. Holl. *Shru*
2. *Triflora.* Cayenne. *Shrub.*
3. *Divaricata.* St Lucia, Martinique, and Sant Cruz. *Shrub.*
4. *Pubescens.* India. *Shrub.*
5. *Altissima.* Woods of Ceylon. *Shrub.*
6. *Agnus Castus.* Sicily and Naples. *Shrub.*
7. *Incisa.* China. *Shrub.*
8. *Leucoxylon.* Woods of Ceylon. *Shrub.*
9. *Trifolia.* India. *Shrub.*
10. *Umbrosa.* Shady parts of Jamaica. *Shrub.*
11. *Capitata.* Trinidad. *Shrub.*
12. *Negundo.* India. *Shrub.*
13. *Pinnata.* Ceylon. *Shrub.*
* 14. *Parviflora.* Philippine Isles. } Juss. *Ann. du*
* 15? *Rufescens.* Brasil. } *Mus.* Cah.
* 16. *Heptaphylla.* Dominica. } xxxvii. 77.
* 17. *Latifolia.* India. (Lam. *Enc.* ii. 613.)
* 18. *Trifolia.* New Holland. *Shrub.* } See
* 19. *Accuminata.* New Holland. *Shr.* } Brown's
* 20? *Glabrata.* New Holland. *Shrub.* } *Prodr.*
* 21? *Macrophylla.* New Holland. *Shr.* } p. 511.

1198. MYOPORUM. *Cal.* 5-partitus. *Cor.* campanulata, limbo patente subæquali quinquepartito. *Drupa* 1 seu 2-sperma, nucibus 2-locularibus.
1. *Lætum.* New Zealand. *Shrub.*
2. *Pubescens.* New Zealand. *Shrub.*
3. *Crassifolium.* Botany Bay. *Shr.*
4. *Tenuifolium.* New Caledonia. *Shrub.*

1158. CITHAREXYLUM. *Cal.* 5-dentatus, campa nulatus. *Cor.* infundibuliformi-rotata: lacinii supra villosis, æqualibus. *Drupa* 2-sperma. *Nuc* 2-loculares.
1. *Cinereum.* South America. *Shrub.*
2. *Caudatum.* Jamaica. *Shrub.*

3. *Villosum.* St Domingo. *Shrub.*
4. *Subserratum.* Barren plains of Hispaniol. *Shr.*
5. *Quadrangulare.* Martinique. *Shrub.*
6. *Melanocardium.* Jamaica. *Shrub.*
*7. *Pentandrum.* Porto Rico. *Shrub.* (Vent. *H. Cels.*)
*8. *Pulverulentum.* South America. (*Persoon.*)

1201. VOLKAMERIA. *Cal.* 5-fid. *Cor.* laciniis secundis. *Drupa* 2-sperma. *Nuces* 2-loc.
1. *Aculeata.* Jamaica and Barbadoes. *Shrub.*
2. *Ligustrina.* Mauritius. *Shrub.*
3. *Inermis.* India. *Shrub.*
4. *Capitata.* Guinea. *Shrub.*
5. *Serrata.* India. *Shrub.*
6. *Scandens.* Ceylon. *Shrub.*
7. *Japonica.* Japan. *Shrub.*
8. *Kæmpferi.* China and Japan. *Shrub.*
*9. *Spinosa.* Peru. (Juss. *Ann. Mus.*)
*10. *Tomentosa.* } Vent. *Malmais.* t. 84.
*11. *Angustifolia.* Bourbon. *Shrub.* }
*12. *Pumila.* Cochinchina. } *Loureiro.*
*13. *Petasites.* Cochinchina. }
*14. *Fragrans.* Java. (Vent. *Id.*)

1202. CLERODENDRON. *Cal.* 5-fid. campan. *Cor.* tubo filiformi; limbo 5-part. æquali. *Stam.* longissima intra lacinias maxime hiantes. *Drupa* 4-sperma, nuce 1-loc.
1. *Infortunatum.*
2. *Fortunatum.*
3. *Calamitosum.*
4. *Phlomoides.*
5. *Squamatum.*
6. *Trichotomum.*
7. *Diversifolium.*
8. *Paniculatum.*
*9. *Viscosum.*
*10. *Medium.*
*11. *Attenuatum.*
*12. *Floribundum.*
*13. *Ovatum.*
*14. *Coriaceum.*
*15. *Costatum.*

Sp. 1—9 from India, excepting Sp. 6. from Japan. Sp. 10—15 are shrubby, and from New Holland.

Class XIV. Didynamia.

Mr Brown includes under this genus Sp. 3 and 20. of VOLKAMERIA.

1197. DURANTA. *Cal.* 5-fid. superus. *Drupa* 4-sperma. *Nux* 2-loc.
1. *Plumieri.* South America. *Shrub.*
2. *Ellisia.* Jamaica. *Shrub.*
3. *Mutisii.* South America. *Shrub.*
*4. *Dentata.* Africa? (*Herb.* of Rich.)
*5. *Triacantha.* Peru. *Shrub.* (Juss. *Ann. Mus.*)

SECT. VI. *Calyxes many-cleft.*

1187. HYOBANCHE. *Cal.* 7-phyll. *Cor.* ringens labio inferiore nullo. *Caps.* 2-loc. polysperma.
1. *Sanguinea.* Cape of Good Hope.

1212. LEPIDAGATHIS. *Cal.* polyphyll. imbricatus. *Cor.* bilabiata, labio superiore minimo, inferiore 3-part. *Caps.* 2-loc.
1. *Cristata.* India. *Shrub.*

1146. CYMBARIA. *Cal.* 10-dent. *Caps.* cordata, 2-loc.
1. *Daurica.* Mountains of Dauria. *Peren.*

1208. THUNBERGIA. *Cal.* duplex: exterior 2-phyll. interior 12-dent. *Cor.* campan. *Caps.* rostrata 2-loc.
1. *Capensis.* Cape of Good Hope.
2. *Fragrans.* Near Samulcotah India. *Shrub.*
*3. *Volubilis.* India. (*Herb.* of Juss.)
*4? *Repens.* Near Canton. (*Loureiro.*)

SECT. VII. *Flowers with many Petals.*

1215. MELIANTHUS. *Cal.* 5-phyll. foliolo inferiore gibbo. *Pet.* 4; nectario infra infima. *Caps.* 4-loc.
1. *Major.* Cape of Good Hope. *Shrub.*
2. *Minor.* Cape of Good Hope. *Shrub.*
3. *Comosus.* Cape of Good Hope. *Shrub*

NEW GENERA.

ORDER I. GYMNOSPERMIA.

I. WESTRINGIA. *Cal.* semi 5-fid. 5-gon. *Cor.* lab. *sup.* planum, 2-fid. *inf.* 3-part. æquale. *Stam.* 4, distantia: duo *superiora* antheris polliniferis, dimidiatis: *inferiora* antheris 2-part. cassis, (*Smith*, and Brown, *Prodr.* p. 501.)
1. *Rosmariniformis.*
2. *Dampieri.*
3. *Rigida.*
4. *Cinerea.*
5. *Angustifolia.*
6. *Longifolia.*
7. *Glabra.*
8. *Rubiæfolia.*

All shrubby, and from N. Holl. and V. Diem. Isl.

II. MICROCORYS. *Cal.* semi 5-fid. *Cor.* ringens, galea abbreviata; labii inf. lacinia media latiore. *Stam.* 4, duo *sup.* inclusa, antherarum lobo pollinifero glabro, sterili barbato: *inf.* antheris 2-part. cassis, (*Id. Id.* p. 502.)
1. *Virgata.* New Holland. *Shrub.*
2. *Barbata.* New Holland. *Shrub.*
3. *Purpurea.* New Holland. *Shrub.*

III. HEMIGENIA. *Cal.* 5-fid. 5-gon. *Cor.* ringens; galea breviore; labii inf. lacinia media semibifida. *Stam.* 4, sub-galeam adscendentia; omnium *Antheræ* lobo altero pollinifero; altero descendenti casso, superiorum barbato. (*Id. Id.* p. 502.)
1. *Purpurea.* New South Wales. *Shrub.*

IV. HEMIANDRA. *Cal.* compressus, 2-labiatus, lab. sup. indiviso, inf. semibifido. *Cor.* 2-lab. lab. *sup.* plano, bifido: *inf.* 3-part. lacinia media 2-fida. *Stam.* 4, adscendentia, *antherarum* omnium lobo altero pollinifero, altero casso, descendenti. (*Id. Id.* p. 502.)
1. *Pungens.* New Holland. *Shrub.*

New Genera.

V. ANISOMELES. *Cal.* tubulosus 10-striatus, 5-fid. *Cor.* lab. *sup.* minus, integrum: *inf.* 3-fid. lacinia media 2-loba. *Stam.* exserta, adscendentia. *Antheræ breviorum* 2-loc. loculis appositis: *longiorum* dimidiatæ v. dissimiles. *Sem.* levia. (*Id. Id.* p. 503.)
1. *Moschata.* New Holland.
2. *Inodora.* New Holland.
3. *Salvifolia.* New Holland.

VI. LEUCAS. *Cal.* tubulosus, 10-striatus, 8-10-dent. ore æquali v. obliquo. *Cor.* ringens, *galea* concava, integra, barbata: *lab. inf.* 3-fidum, lacinia medio majore. *Anth.* didymæ, imberbes, lobis divaricatis. *Stig.* bilabiatum, lacinia superiore brevissima. (*Id. Id.* p. 504.)
1. *Flaccida.* New Holland.

This genus contains also Sp. 15—21, and Sp. 23 of PHLOMIS, p. 244.

VII. CHILODIA. *Cal.* 2-lab. 2-bract. tubo striato; *lab. sup.* integro, intus costa transversa; *inf.* semibifido. *Cor.* ringens, galea breviore integra, la-

XXXVI. Ourisia. *Cal.* 5-fid. subæqualis. *Cor.* infundib. limbo 5-fido, subæquali, obtuso. *Stig.* 2-lob. *Caps.* 2-loc. 2-valv. valvis medio septiferis. *Sem.* testa laxa arilliformi. (*Commers.* and R. Brown, *Prodr.* p. 438.)

1. *Integrifolia.* Van Diemen's Island. } (*Brown.*)
2. *Magellanica.* (*Chelone ruelloides* of Willd.)
3. *Coccinea.* San Carlos in Chili. (*Cavan.*)

"Sp. 1. a Sp. 2." says Mr Brown, "facie diversa, et calyce æquali profundiusque diviso, necnon corolla breviore, ideoque forsan generis distincti." *Prodr.* p. 439.

XXVII. Mazus. *Cal.* campan. 5-fid. æqualis. *Cor.* ringens, labio *sup.* 2-lobo, lateribus reflexis; *inf.* 3-fido, lobis integris, basi bigibbosa. *Stig.* 2-lamellatum. *Caps.* inclusa, 2-loc. 2-valv. valvis integris, medio septiferis. (*Loureiro,* and R. Brown, *Prodr.* p. 439.)

1. *Rugosus.* Cochinchina. (*Loureiro.*)
2. *Pumilio.* Van Diemen's Island. (*Brown.*)

Mr Brown thinks, that *Lindernia Japonica* belongs to this genus, and that it is probably the same plant as Sp. 1.

XXVIII. Uvedalia. *Cal.* prismaticus, 5-dent. *Cor.* ringens; labio *sup.* 2-lobo; *inf.* 3-fido, lacin. intermedia parum dissimili, basi bigibbosa. *Antherarum* lobis divaricatis. *Stig.* complanatum. *Caps.* inclusa, 2-loc. 4-valv. dissepimento e valvularum marginibus inflexis tardius solubilibus, placentæ centrali insertis. (R. Brown, *Prodr.* p. 440.)

1. *Linearis.* New Holland.

XXIX. Morgania. *Cal.* 5-part. æqualis. *Cor.* ringens; labio *sup.* 2-lobo; *inf.* 3-fido, lobis subæqualibus, obcordatis. *Stam.* inclusa. *Antherarum* lobis divaricatis, muticis. *Stig.* 2-lamellatum. *Caps.* 2-loc. 2-valv. valvis 2-part. dissepimento ex inflexis marginibus valvularum. (*Id.* p. 441.)

1. *Glabra.* New Holland.
2. *Pubescens.* New Holland.

XXX. Herpestis. *Cal.* 5-part. inæqualis, foliolis 2 interioribus minoribus obtectis. *Cor.* tubulosa, subbilabiata. *Stam.* inclusa: *Antherarum* lobis divaricatis. *Stig.* emarginatum. *Caps.* calyce (ut plurimum aucto) inclusa 2-loc. 2-valv. valvis 2-part. dissepimento parallelo, libero; placentis adnatis. (*Gærtner,* and R. Brown, *Prodr.* p. 441.)

1. *Floribunda.* New Holland.

Mr Brown thinks that *Lindernia dianthera* belongs to this genus.

XXXI. Limnophila. *Cal.* tubulosus, 5-fid. æqualis. *Cor.* infundib. limbo 5-fido, subæquali. *Stam.* inclusa: *Anth.* per paria cohærentes. *Stig.* dilatatum obliquum. *Caps.* 2-loc. 2-valv. valvis 2-part. dissepimento marginibus tardius dehiscentibus valvularum inserto. (R. Brown, *Prodr.* p. 442.)

1. *Gratioloides.* (*Hottonia Indica* of Willd.)

XXXII. Adenosma. *Cal.* 5-part. lacin. suprema majore. *Cor.* ringens, lab. *sup.* indiviso, *inf.* 3-lobo. equali. *Anth.* approximatis. *Stig.* dilatatum. *Caps.* ovata, rostrata, 2 partibilis: *Placentæ* suturis adnatæ. (R. Brown, *Prodr.* p. 442.)

1. *Cœrulea.* New Holland.

XXXIV. Anthocercis. *Cal.* 5-fid. *Cor.* campan. tubo basi coarctata, staminifera; limbo 5-part æquali. *Stam.* inclusa, cum rudimento 5ti. *Stig.* capitato emarginatum. *Caps.* 2-loc. 2-valv. valvarum marginibus inflexis, placentæ parallelæ insertis. *Sem.* reticulata. (*Labill.* & R. Brown, *Prodr.* p. 448.)

1. *Littorea.* New Holland. *Shrub.* (*Labill.*)
2. *Viscosa.* New Holland. *Shrub.* (*Brown.*)

XXXV. Duboisia. *Cal.* 2-lab. brevis. *Cor.* infundibuliformi-campan. limbo 5-part. subæquali. *Stam.* imæ corollæ inserta, inclusa, rudimento 5ti. *Stig.* capitato emarginatum. *Bac.* 2-loc. polysperma. *Sem.* subreniformia. (R. Brown, *Prodr.* p. 448.)

1. *Myoporoides.* New South Wales. *Shrub.*

XXXVI. Tecoma. *Cal.* 5-dent. *Cor.* subcampan. ore 5-lobo, inæquali. *Stam.* 4, fil. 5to sterili, breviore. *Caps.* dissepimentum contrarium. (*Juss.* and R. Brown, *Prodr.* p. 471.)

1 *Australis.* New Holland. *Shrub.*

XXXVII. Spathodea. *Cal.* spathaceus, hinc fissus, inde dentatus v. integer. *Cor.* subinfundibulif. limbo 5-lobo, parum inæquali. *Stam.* 4, fil. 5to sterili. *Caps.* siliquæformis, falcata, pseudo-4-loc. *Dissepimentum* contrarium, suberosum. (Beauvois, *Fl. D'Oware,* and R. Brown, *Prodr.* p. 471.)

1. *Heterophylla.* New Holland. *Shr.* } Brown,
2? *Alternifolia.* New Holland. *Shr.* } *Prodr.*
3. *Campanulata.* Equin. Africa. } Beauvois, *Fl.*
4. *Lævis.* Oware. } *D'Oware.*
5. *Longiflora.* (*Bignonia spathacea* of Willd.)
6. *Indica.* (*Bignonia Indica* of Willd.)

XXXVIII. Hygrophila. *Cal.* tubulosus, semi 5-fid. æqualis. *Cor.* ringens. *Stam.* 4, antherifera, antherarum loculis parallelis, muticis. *Ovarii* loculi polyspermi. *Dissepimentum* adnatum. *Sem.* retinaculis subtensa. (R. Brown, *Prodr.* p. 479.)

1. *Angustifolia.* New Holland.
2. *Ringens.* (*Ruellia ringens* of Willd.)

XXXIX. Pityrodia. *Cal.* campan. 5-fid. æqualis. *Cor.* infundib. parum irregularis *lab. sup.* semibilobo; *inf.* 3-part. æquali. *Stam.* 4, subdidynama. *Stig.* 2-fid. *Drupa* semibaccata (apice exsucco); putamine 4-loc. 4-spermo, basi perforata. *Sem.* subalbuminosa. (R. Brown, *Prodr.* p. 513.)

1. *Salvifolia.* New Holland. *Shrub.*

XL. Chloanthes. *Cal.* camp. 5-fid. æqualis. *Cor.* tubulosa, ringens. *Faux* ampliata. *Lab. sup.* 2-fid. *inf.* 3-part. lobo intermedio longiore. *Stam.* 4, exserta. *Stig.* 2-fid. acutum. *Drupa* exsucca, dipyrena. *Pyrenæ* 3-loc. loculis lateralibus 1-spermis, intermedio sterili, farcto. (R. Brown, *Prodr.* 514.)

1. *Stoechadis.* New South Wales. *Shrub.*
2. *Glandulosa.* New South Wales. *Shrub.*

XLI. Zapania. *Cal.* 5 dent. v. maturitate 2 valv. *Cor.* subinfundib. 2-lab. labio *sup.* 2-lobo, *inf.* 3-part. æquali. *Pericarp.* tenue, evanidum. *Sem.* 2. *Flores* capitati. (*Juss.* and R. Brown, *Prodr.* p. 514.)

1. *Nodiflora.* (*Verbena nodiflora* of Willd.)
2. *Stoechadifolia.* (*Verbena stoech.* of Willd.)
3. *Odorata.* (*Verbena globiflora* of Willd.)
4. *Scaberrima.* (*Jussieu.*)
5. *Lanceolata.* Carolina. (*Mich.* ii. p. 15.)

XLII. Pholidia. *Cal.* profunde 5-fid. fructifer non mutatus. *Cor.* infundib. *tubo* calyce longiore: *fauce* ampliata, hinc gibbosa: *limbo* brevi, irregulari; lab. *sup.* 2-lobo, recurvo; *inf.* 3-part. æquali, patulo. *Stam.* 4, inclusa. *Anth.* barbatæ. *Stig.* capitatum, emarginatum. *Drupa* exsucca, putamine 4-loc. 4-spermo. (R. Brown, *Prodr.* 517.)

1. *Scoparia.* New Holland. *Shrub.*

XLIII. Stenochilus. *Cal.* 5-part. *Cor.* ringens; *lab. sup.* erecto, semi-4-fido; *inf.* indiviso, angusto, deflexo. *Stam.* exserta. *Ovar.* 4-loc. loculis 1-spermis. *Stig.* obtusum, indivisum. *Drupa* baccata, 4-loc. *Sem.* solitaria. (R. Brown, *Prodr.* p. 517.)

1. *Glaber*. New Holland. *Shrub.*
2. *Longifolius*. New Holland. *Shrub.*
3. *Tomentosus*. New Holland. *Shrub.*

XLIV. EREMOPHILA. *Cal.* 5-part. fructifer alienatus, scariosus. *Cor.* - - - *Stig.* indivisum. *Drupa* exsucca, 4-loc. 4-sperma. (R. Brown, *Prodr.* p. 518.)

1. *Oppositifolia*. New Holland. *Shrub.*
2. *Alternifolia*. New Holland. *Shrub.*

XLV. ALOYSIA. *Cal.* profunde 4-fid. *Cor.* tubulosa, 4-loba. *Stig.* emarginatum. *Stam.* 4, perfecta. *Sem.* 2. (Spicæ graciles.)

1. *Citriodora*. Buenos Ayres and Chili. (*Ortega.*)
2. *Virgata*. Groves of Pozuzo. (*Fl. Per.* i. 20.)

XLVI. PRIVA. *Cal.* ventricosus seu inflatus, 5-dent. *Cor.* tubo cal. paulo longior, apice contractus. *Drupa* cal. tecta. *Nuculæ* 2, 2-loc. dispermæ. *Stam.* 2-4.

1. *Lappulacea*. (*Verbena lappul.* of Willd.)
2. *Dentata*. (*Verbena forskalei* of Willd.)
3. *Mexicana*. (*Verbena Mexic.* of Willd.)
4. *Leptostachya*. (*Tortula aspera* of Willd.)

5? *Lævis*. Buenos Ayres. (Juss. *Ann. Mus.* Cah. 37.)

XLVII. TAMONEA. *Cal.* subcampan. 5-aristatus. *Cor.* tubulosa, 2-lab. *Nux* 4-loc. carnosa.

1. *Curassavica*. (*Ghinia spinosa* of Willd.)
2. *Mutica*. (*Ghinia mutica* of Willd.)

XLVIII. STACHYTARPHETA. *Flor.* in spicæ crassæ foveolis immersi, squamis tecti. *Cal.* tubulosus 4-dent. *Cor.* hypocraterif. inæqualis, 5-fida, curva. *Stam.* 4, 2-sterilia. *Sem.* 2. (*Verbenæ* species, Linn.)

1. *Angustifolia*. South America.
2. *Indico*. South America and India.
3. *Aristata*. South America.
4. *Jamaicensis*. Caribbee Isles.
5. *Dichotoma*. Woods of Peru.
6. *Marginata*. West Indies.
7. *Cajanensis*. Cayenne.
8. *Mutabilis*. 10. *Prismatica*.
9. *Orubica*. 11. *Squamosa*.

Sp. 8—11 from South America.—See Vahl's *Enum.* Pl. i. p. 205.

XLIX. HOSTANA. *Cal.* obsolete 2-lab. 4-dent. *Cor.* subringens: lacinia intermedia labii inf. ampla emarginata. *Drupa* nuce 4-loc. 4-sperma.

1. *Cœrulea*. (*Cornutia punctata* of Willd.)

L. GOMARA. *Cal.* 4-fid. *Cor.* irreg. tubo curvato, ad medium coarctato. *Nect.* cyathiforme, membranaceum. *Stig.* capitatum. *Caps.* 2-loc. 2-valv. polysperma.

1. *Racemosa*. Groves of Peru. (*Fl. Per.* 162.)

LI. ESCOBEDIA. *Cal.* magnus, urceolatus: 10-angularis. *Cor.* infundib. tubo curvato contorto, limbo 5-fido, patentissimo. *Caps.* 2 loc. 2-valv. *Sem.* intra vesiculas.

1. *Scabrifolia*. Mts. of Peru. (*Fl. Per.* 159.)

LII. ORONTIUM. *Cal.* 5-phyll. *Cor.* ecalcarata basi gibba: labio sup. 2-fido reflexo; *inf.* 3-fido, fauce palato clausa. *Caps.* basi obliqua, evalvis, apice poris 3-dehiscens.

1. *Calycinum*. Portugal. (*Brotero.*)

This genus contains also Sp. 62—69 of ANTIRRHINUM, p. 253.

LIII. NEMESIA. *Cal.* 5-part. *Cor.* calcarata, palato prominente. *Caps.* compressa, truncata, longitudinaliter medio dehiscens, 2-loc. 2-valv. *Sem.* numerosa, linearia. (*Fol.* opposita.)

1. *Fœtens*. Cape of G. Hope. (Vent. *Malm.*)
2. *Linearis*. (*Herb.* of Juss.)
3. *Longicorne*. Cape of Good Hope.

This genus contains also Sp. 45, 46, of ANTIRRHINUM.

LIV. CALYTRIPLEX. *Cal.* triplex: intermedius 3-part. latior. *Cor.* irregularis, limbo 4-fido, laciniis 2 super. latioribus. *Stig.* capitatum, emarginatum. *Caps.* 2-loc. 2-valv. valvulis 2-fid. *Sem.* plura, sulcata, transversim striata.

1. *Obovata*. Peru. (*Fl. Per.* 164.)

LV. SCIZANTHUS. *Cor.* irregularis: lab. *sup.* 5-fido: *inf.* 3-part. *Fil.* 2-sterilia. *Caps.* 2-loc.

1. *Pinnatus*. Chili. (*Fl. Per.*)

LVI. VIRGULARIA. *Cal.* campan. 5-dent. *Cor.* subcampan. recurva: fauce ventricosa, gibba. *Stig.* 2-fid. lacinia sup. alteram semivaginante. *Caps.* 2-loc. 2-valv. polysperma.

1. *Lanceolata*. Hills of Peru. } *Fl. Per. Syst.*
2. *Revoluta*. Hills of Peru. } 161.

LVII. DICEROS. *Cal.* 5-part. *Cor.* subæqualis 4-fida: lacinia 1 majore. *Anth.* connexæ, 2-part. divaricatæ. *Caps.* 2-loc. 2-valv.

1. *Longifolius*. (*Achimenes sesamoides* of Wil.)
2. *Cochinchinensis*. Cochinchina. (*Loureiro.*)

LXVIII. PICRIA. *Cal.* 4-phyll. deciduus: foliol. alternis linearibus brevioribus. *Cor.* tubulosa, ringens: tubo in medio constricto; lab. sup. spathulato. *Bac.* 2-loc.

1. *Fel-terræ*. Cochinchina, China. (*Loureiro.*)

LIX. TEEDIA. *Cal.* 5-part. *Cor.* hypocraterif. 5-fida, obtusa. *Styl.* brevis, persistens. *Bac.* 2-loc. polysperma.

1. *Lucida*. (*Capraria lucida* of Willd.)

LX. MONIERA. *Cal.* 2-bract. *Cor.* subæqualis, 5-fida. *Caps.* dissepimento valvis parallelo. *Stam.* fertilia. (Plantæ ut plurimum repentes. *Pedunc.* axillares, 1-flori.)

1. *Rotundifolia*. Illinois. } See Mich. *Fl.*
2. *Amplexicaulis*. Carolina. } *Ann.* i. p. 22.
3. *Cuneifolia*. Carolina. }
4. *Africana*. Africa. } *Herb.* of Richard.
5. *Pedunculosa*. Java. }
6. *Brownei*. (*Gratiola monnieria* of Willd.)

LXI. SALPIGLOSSIS. *Cal.* 5-angul. 5-fid. *Cor.* infundib. *Rudiment.* filam. 5-ti inter stam. longiora. *Styl.* lingulatus, utrinque denticulo notatus. *Stig.* truncatum. *Caps.* 2-loc. 2-valv.

1. *Sinuata*. Conception in Chili. (*Fl. Per.* 163.)

LXII. TRIPINNARIA. *Cal.* cyathiformis, 5-crenatus. *Cor.* subcampan. patens, 5-fida: laciniis ovatis, undulatis, villosis: summa majore. *Stig.* acutum, 2-fid. *Bac.* carnosa, 1-loc. polysperma. *Sem.* oblonga, compressa.

1. *Cochinchinensis*. Cochinchina. (*Lour.*)

LXIII. MITRARIA. *Cal.* duplex: exterior mitræformis, inæqualiter fissus; interior 5-part. *Cor.* tubuloso-ventricosa, 2-lab: lab. sup. 2-fidum; *inf.* 3-fid. *Stam.* exserta. *Bac.* succulenta, 1-loc. *Sem.* numerosa, nidulantia.

1. *Coccinea*. St Carlos. (*Cavan.*)

LXIV. MENDOZIA. *Cal.* 2-phyll. latus. *Cor.* irregularis, tubo gibbo, fauce coarctato. *Nect.* duplex, annulare. *Drupa* 1-sperma.

1. *Aspera.* Groves of Peru. } *Fl. Per.*
2. *Racemosa,* Groves of Peru. *Shr.* } *Syst.* 158.

LXV. Mecardonia. *Cal.* 7-phyll. *Cor.* irregularis: tubo ventricoso, lab. *sup.* 2-fido, inf. 3-part. *Styl.* apice compressus, incurvus. *Caps.* 1-loc. 2-valv. *Recept.* teres.

1. *Ovata.* Peru. (*Fl. Per. Syst.* 164.)

LXVI. Dilivaria. *Cal.* 5-part. 3-bract. imbricatus. *Cor.* labiata; tubo coarctato brevi, squamulis clauso, supra denticulato, infra desinente in labium unicum maximum subtrilobum. *Stig.* simplex. *Caps.* ovata: locul. 1-2-spermis. (*Jussieu.*)

1. *Ilicifolia.* N. Holl. and East Indies. *Shrub.*
2. *Ebracteata.* New Holland and East Indies.

These two species are given by Willdenow and Brown under *Acanthus.* "Inter acanthum et Dilivariam," says Mr Brown, "vix ullam differentiam in fructificationis partibus video, nec insignem in habitu, quo autem et inflorescentia Blepharis valde diversa est." *Prodr.* p. 480.

LXVII. Blepharis. *Cal.* duplex, *int.* 4-fid. laciniis 2 multo majoribus; *ext.* 4-phyll. ciliatus, 3-bract. bracteis minoribus ciliatis. *Cor.* labiata, tubo coarctato squamulis clauso; labio *sup.* denticulato, *inf.* maximo, sub-3-lobo. *Stig.* simplex. *Caps.* ovata, loculis 1-2-spermis. (*Jussieu.*)

1. *Calaminthæfolia.* } *Herb.* of Juss.
2. *Linearifolia.* Senegal. }

This genus contains also Sp. 8—14 of Acanthus, p. 248.

LXVIII. Phelypæa. *Cal.* 5-fid. aut 5-part. *Cor.* ringens, inflata, 5 loba: lobis rotundatis subæqualibus. *Anth.* villis intertextis villosæ. *Caps.* ovata, compressa, 2-loc. polysperma.

This genus contains Sp. 14, 15, 18, and perhaps some other species of Orobanche, p. 247.

REMARKS ON THE CLASS DIDYNAMIA.

Under this class Persoon ranks the genera Ziziphora, Verbena, and Cyrtandra, which, after Willdenow, we have given under the class Diandra.

The following plants being didynamous, might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

Gymnospermia.

Several species of Verbena. Monarda *didyma.* Rosmarinus. Collinsonia. Lycopus. Amethystea, which have two abortive stamina.

Angiospermia.

Buddleia. Scoparia. Schwenkfeldia. Some species of Justicia. Elytraria. Sanchezia.

CLASS XV. TETRADYNAMIA.

Siliculosæ.

Sect. I. *Silicula entire, not notched at the Apex.*

‡1225. Draba. *Silicula* integra, ovali-oblonga, valvis planiusculis dissepimento parallelis. *Styl.* 0.

1. *Aizoides.* Austria, Switzerland, France, and Bayreuth. *Peren.*
2. *Rigida.* Armenia. *Peren.*
3. *Ciliaris.* Mountains of Barcelona. *Peren.*
4. *Alpina.* Mts. in the N. of Europe. *Peren.*
5. *Hispida.* Cappadocia. *Peren.*
6. *Verna.* England and N. America. *Ann.*
7. *Caroliniana.* Carolina. *Ann.*
8. *Nivalis.* Lapland, Norway, Switzerland, and Mount Cenis. *Peren.*
9. *Stellata.* Mountains of Austria, Switzerland, France, and Scotland. *Peren.*
10. *Androsacea.* Mountains of Carniola, Croatia, and Carinthia. *Peren.*
11. *Pyrenaica.* Pyrenees, and on the mountains of Switzerland, Italy, and Austria. *Peren.*
12. *Muralis.* Engl. and other pts. of Eur. *Ann.*
13. *Nemoralis.* Groves of Sweden, Russia, and Japan. *Ann. Bien.*
14. *Hirta.* England and Lapland.
15. *Incana.* England and other pts. of Eur. *Bien.*
16. *Magellanica.* Straits of Magellan.

*17. *Hirsuta.* Siberia. (*Persoon.*)
*18. *Fladnizensis.* Carinthia. (Vest *Man. Bot.* 613.)
*19. *Arabis.* New England. (*Mich.* ii. 28.)
*20? *Contorta.* (Ehr. *Beitr.* vii. p. 155.)

1234. Lunaria. *Silic.* integra, elliptica, compresso-plana pedicellata; valvis dissepimento æqualibus parallelis, planis. *Cal.* foliolis saccatis.

1. *Rediviva.* N. of Europe and Germany. *Per.*
2. *Annua.* Germany and Sweden. *Ann.*

*3. *Suffruticosa.* In the East. (Vent. *H. Cels.*)
*4. *Pinnata.* Cape of Good Hope. } Thunb.
*5. *Diffusa.* Cape of Good Hope. } *Prodr.*
*6. *Elongata.* Cape of Good Hope. } p. 107.

Persoon thinks that Sp. 4—6 may belong to some other genus, or may form a new one.

‡1224. Subularia. *Silic.* integra, ovata; valvis ovatis, concavis dissepimento contrariis. *Stylis* silicula brevior.

1. *Aquatica.* Britain and other parts of the north of Europe. *Ann.*
2. *Alpina.* Mountains of Carniola. *Peren.*

1216. Myagrum. *Silic.* stylo conico terminata, loculo sub-1-spermo.

1. *Perenne.* Germany. *Peren.*
2. *Orientale.* In the East. *Ann.*
3. *Rugosum.* South of Europe. *Ann.*
4. *Hispanicum.* Spain. *Bien.*
5. *Perfoliatum.* Among the standing corn in France and Switzerland. *Ann.*
6. *Chloræfolium.* In the East. *Shrub.*
7. *Sativum.* Among lint in Europe. *Ann.*
8. *Dentatum.* Standing corn in the S. of Eur. *An.*
9. *Austriacum.* Bogs and ditches of Austria and Hungary. *Peren.*
10. *Paniculatum.* Europe. *Ann.*
11. *Saxatile.* Mountains of Switzerland, Carniola,

and Montpellier. *Peren.*

12. *Egyptium.* Egypt.

Under this genus Persoon includes only Sp. 1—5, and 12.

‡ 1222. Vella. *Silic.* dissepimento valvulis duplo majore, extus ovato.

1. *Annua.* England and Spain. *Ann.*
2. *Pseudo-cytisus.* Near Aranjuez in Spain. *Shr.*
*3. *Aspera.* Spain. (*Herb.* of Juss.)

1219. Cakile. *Silic.* lanceolata sub-4-gona medio utrinque dente instructa biarticulata, ad articulos secedens, articulis 1-spermis evalvibus.

1. *Maritima.* Shores of Europe, Asia, Africa, and America. *Ann.*
2. *Egyptiaca.* Shores of Italy, Barbary, and Egypt. *Ann.*

1218. Pugionium. *Silic.* transversalis utrinque rostrata evalvis 1-sperma. *Sem.* arillatum!

1. *Cornutum.* Deserts of the Calmucks.

‡ 1217. Bunias. *Silicula* subtetraëdra evalvis 2 seu 4 locularis rugosa.

1. *Spinosa.* In the East. *Ann.*
2. *Erucago.* Montpellier. *Ann.*
3. *Aspera.* At the Douro in Portugal. *Ann.*
4. *Orientalis.* Russia. *Peren.*
5. *Cochlearioides.* France, Italy, Hungary, and Sclavonia. *Ann.*
6. *Tatarica.* Hills of Siberia. *Ann.*
7. *Syriaca.* Austria, Hungary, the Bannat, Siberia, Syria, and Sumatra. *Ann.*
8. *Myagroides.* Siberia. *Ann.*
9. *Egyptiaca.* Egypt. *Ann.*
10. *Balearica.* Balearic Isles. *Ann.*
11. *Prostrata.* Sands of Caffa in the N. of Africa.
*12. *Cakile.* Britain. *Ann.* (*Smith.*)

‡ 1220. Crambe. *Fil.* 4 longiora apice bifurca: altero antherifero. *Sil.* globosa, 1-sperma evalvis.

1. *Maritima.* Engl. and the N. of Europe. *Per.*
2. *Tatarica.* Hungary, Moravia, Siberia. *Per.*
3. *Orientalis.* In the East. *Peren.*
4. *Hispanica.* Spain. *Ann.*
5. *Reniformis.* Mount Atlas near Tlemsen.
6. *Filiformis.* Champion river in Patagonia. *Per.*
7. *Fruticosa.* Rocks of Madeira. *Shrub.*
8. *Strigosa.* Canary Isles. *Shrub.*

Sect. II. *Silicula notched at the Apex.*

‡ 1229. Iberis. *Cor.* irregularis: pet. 2 exterioribus majoribus. *Silic.* polysperma, emarginata.

1. *Semperflorens.* Sicily and Persia. *Shrub.*
2. *Cappadocica.* Cappadocia. *Shrub.*
3. *Sempervirens.* Candia and Italy. *Shrub.*
4. *Gibraltarica.* Gibraltar. *Shrub.*
5. *Saxatilis.* Italy and France. *Shrub.*
6. *Vermiculata.* Mts. of Eastern Tauria. *Per.*
7. *Rotundifolia.* Switz. Bavaria, Italy. *Per.*
8. *Cepeæfolia.* Carinthia. *Peren.*
9. *Carnosa.* Pyrenees. *Peren.*
10. *Ciliata.* Regions of Caucasus. *Ann. Bien.*
11. *Parviflora.* In the East.
12. *Nana.* Mts. of Piedmont. *Ann.*
13. *Umbellata.* Tuscany, Spain, Candia. *Ann.*
14. *Amara.* Engl. Switzerland, Germany. *Ann.*
15. *Linifolia.* Spain, Portugal, Montpel. *Bien.*
16. *Odorata.* South of France. *Ann.*
17. *Nudicaulis.* Engl. and other pts. of Eur. *Ann.*
18. *Pinnata.* Shores of the S. of Europe. *Ann.*
*19. *Contracta.* Spain. (*Herb.* of Juss.)
*20. *Oppositifolia.* Syria. (*Labillard.*)
*21. *Intermedia.* Near Rouen. (Gaernsent. *Bull. Soc. Phil.*)
*22? *Crenata.* Spain. (A variety of 21?)

‡ 1230. Alyssum. *Fil.* quædam introrsum denticulo notata. *Silic.* emarginata.

1. *Spinosum.* Cliffs of Spain and France. *Shr.*
2. *Maritimum.* Shores of France, Spain, and the north of Africa. *Shrub. Peren.*
3. *Halimifolium.* Dry parts of the South of Europe. *Shrub.*
4. *Tenuifolium.* Siberia.
5. *Saxatile.* Candia. *Shrub.*
6. *Lunarioides.* Islands of Stenosa, Philocandro, and Namphio. *Shrub.*
7. *Argenteum.* Mts. of Piedmont. *Shrub.*
8. *Alpestre.* Mountains of France, Italy, Switzerland, and Hungary. *Shrub.*
9. *Serpyllifolium.* Tlemsen and Armenia. *Shr.*
10. *Atlanticum.* Tlemsen and Candia. *Shrub.*
11. *Orientale.* In the East. *Shrub.*
12. *Hyperboreum.* North America.
13. *Incanum.* Sandy parts of the North of Europe. *Peren. Bien.*
14. *Minimum.* Spain and Siberia. *Ann.*
15. *Strictum.* Armenia.
16. *Calycinum.* Austria, France, Germany. *Ann.*
17. *Sibiricum.* Siberia.
18. *Spathulatum.* Altaian Mountains. *Peren.*
19. *Montanum.* Dry parts of Switzerland and Germany. *Peren.*
20. *Tortuosum.* Hungary and Siberia. *Peren.*
21. *Campestre.* Spain, Germany, Switzerland. *Ann.*
22. *Linifolium.* Mt. Taurus and Armenia. *Ann.*
23. *Clypeatum.* South of Europe, Lebanon, and Taurus. *Ann.*
24. *Cheiranthifolium.* In the East.
25. *Sinuatum.* Spain, at road sides. *Ann. Bien.*
26. *Creticum.* Spain and Candia. *Shrub.*
27. *Gemonense.* Bayreuth and Carinthia. *Peren.*
28. *Dasycarpium.* At the R. Wolga and Kamas.
29. *Utriculatum.* In the East. *Peren.*
30. *Vesicaria.* In the East. *Peren.*
31. *Deltoideum.* In the East. *Shrub.*
*32. *Mutabile.* In the East. (*Vent. H. Cels.*)
*33. *Edentulum.* Hungary. (*Pl. Hung.* 95.)
*34. *Sativum.* Britain. *Ann.* (*Smith.*)

1231. Clypeola. *Silic.* emarginata, orbiculata, compresso-plana, decidua, 2-partib. 1-loc. 1-sperma.

1. *Jonthlapsi.* Italy and Narbonne. *Ann.*
*2. *Lasiocarpa.* In the East.

1232. Peltaria. *Silic.* integra, suborbiculata, compresso-plana, non dehiscens, 1 seu 3-sperma.

1. *Alliacea.* Mts. between Istria and Croatia. *Per.*
2. *Garcini.* Persia.
3. *Capensis.* Cape of Good Hope.

‡ 1228. Cochlearia. *Silic.* emarginata, turgida scabra: valvulis gibbis, obtusis.

1. *Officinalis.* England and other parts of Europe. *Ann. Bien.*
2. *Danica.* Denmark and Sweden. *Ann. Bien.*
3. *Anglica.* Shores of England. *Bien.*
4. *Groenlandica.* Iceland, Jutland, Greenl. *Ann.*
5. *Sibirica.* Siberia.
6. *Acaulis.* Morocco and Portugal. *Peren.*
7. *Coronopus.* Europe. *Ann.*
8. *Armoracia.* Engl. and other pts. of Eur. *Pe*
9. *Macrocarpa.* Wet meadows of Europe. *Pe*

10. *Glastifolia.* Fields at Ratisbon. *Bien.*
11. *Draba.* Austria, France, and Italy. *Per.*
*12? *Olisiponensis.* Near Lisbon. (*Brotero.*)
‡ 1226. Lepidium. *Silic.* emarginata, cordata, polysperma: valvulis carinatis, dissepimento contrariis.
1. *Perfoliatum.* Austria, Persia, Syria. *Ann.*
2. *Vericarium.* Media. *Ann.*
3. *Nudicaule.* Montpellier, Spain, Algiers. *An.*
4. *Procumbens.* Spain, and at Mt. Caucasus. *An.*
5. *Alpinum.* Mountains of Schneeberg, Saltzburg, Tyrol, Switz. and Mt. Baldo. *Peren.*
6. *Calycinum.* Altaian mts. of Siberia. *Per.*
7. *Petræum.* England, Oeland, Austria. *Ann.*
8. *Cardamines.* Clayey parts of Spain. *Bien.*
9. *Spinosum.* In the East. *An.* 10. *Sativum. An.*
11. *Lyratum.* In the East. *Ann.*
12. *Crassifolium.* Hungary and Siberia. *Per.*
13. *Latifolium.* England and France. *Peren.*
14. *Amplexicaule.* Siberia. *Peren.*
15. *Glastifolium.* Shady mountains of Algiers.
16. *Oleraceum.* New Zealand. *Ann.*
17. *Piscidium.* Island of Teautea. *Ann.*
18. *Subulatum.* Spain. *Peren.*
19. *Graminifolium.* South of Europe. *Peren.*
20. *Apetalum.* Siberia. *Ann.*
21. *Suffruticosum.* Spain. *Shrub.*
22. *Didymum.* England. *Ann.*
23. *Ruderale.* Engl. and other pts. of Europe. *An.*
24. *Virginicum.* Virginia and Jamaica. *Ann.*
25. *Divaricatum.* Cape of Good Hope. *Shrub.*
26. *Iberis.* Germ. France, Italy, Sicily. *Peren.*
27. *Pollichii,* or *Incisum.* Germany. *Ann.*
28. *Bonariense.* Buenos Ayres. *Ann.*
29. *Chalepense.* In the East.
*30. *Stylosum.* France. (*Persoon.*)
*31. *Capense.* *34. *Linoides.*
*32. *Pinnatum.* *35. *Flexuosum.*
*33. *Bipinnatum.* *36. *Arcuatum.*
*37. *Verrucosum.* In the East. (*Enc. Bot.* v. 47.)
Sp. 31—35, from the Cape. See Thunb. *Prodr.*
1227. Thlaspi. *Silic.* emarginata, obcordata, polysperma: valvulis navicularibus, marginato-carinatis.
1. *Peregrinum.* Hills of Carniola.
2. *Arabicum.* Arabia and Cappadocia. *Ann.*
3. *Arvense.* Engl. and other pts. of Europe. *Ann.*
4. *Alliaceum.* South of Europe. *Ann.*
5. *Psychine.* Barbary near Mayane. *Ann.*
6. *Saxatile.* Italy, France, and Austria. *Ann.*
7. *Hirtum.* England, Italy, and France. *Bien.*
8. *Campestre.* Engl. and other pts. of Eur. *Bien.*
9. *Montanum.* Switzerland, Austria, Italy, and Montpellier. *Peren.*
10. *Alpinum.* Austria and mts. of Switz. *Peren.*
11. *Perfoliatum.* England, Switzerland, Germany, and France. *Bien.*
12. *Alpestre.* Engl. Austria, Switzerland. *Ann.*
13. *Bursa pastoris.* England and other parts of Europe. *Ann.*
14. *Ceratocarpon.* Siberia. *Ann.*
*15. *Heterophyllum.* Pyrenees. (*Fl. Franc.*)
*16. *Magellanicum.* Straits of Magellan. (*Herb.* of Juss.)
See the new genus Psychine.
‡ 1221. Isatis. *Silic.* obcordata 2-partib. 1-sperma, valvulis carinatis dissepimento fenestrato.
1. *Tinctoria.* Engl. and other pts. of Eur. *Bien.*
2. *Lusitanica.* Spain and in the East. *Ann.*
3. *Armena.* Armenia.
4. *Alpina.* Dauphiny. *Peren.*
*5. *Dentata.* Syria. (*Herb.* of Decandolle.)
*6? *Hirsuta.* France. (Villars, *Delph.*)

Class XV. Tetradynamia.

1233. Biscutella. *Silic.* compresso-plana, rotundata, supra infraque biloba. *Cal.* foliola basi gibba.
1. *Auriculata.* Italy, Provence. *Ann.*
2. *Apula.* Italy. *Ann.*
3. *Lyrata.* Spain, North of Africa. *Ann.*
4. *Raphanifolia.* Sicily, N. of Africa. *Ann.*
5. *Coronopifolia.* Spain and Italy. *Ann.*
6. *Lævigata.* Italy, Switzerland, Austria, and Germany. *Peren.*
7. *Subspathulata.* Mountains of Italy. *Peren.*
8. *Montana.* High mts. of Valentia. *Peren.*
9. *Sempervirens.* In the East and Spain. *Shr.*
10. *Peruviana.* Peru. *Shrub.*
*11. *Saxatilis.* France, Switz. Germ. (*Villars.*)
1223. Anastatica. *Silic.* retusa, margine coronata valvulis dissepimento duplo longioribus. *Styl.* intermedio mucronato, obliquo, loculis 2-spermis.
1. *Hierochuntica.* Palestine, Barbary, Cairo. *An.*

SILIQUOSÆ.

SECT. I. *Calyx shut by Leafets closing lengthwise.*

‡ 1247. Raphanus. *Cal.* clausus. *Siliqua* torosa, subarticulata, teres. *Gland.* melliferæ 2 inter stam. breviora et pist. totidem inter stam. longiora et cal.
1. *Sativus.* China. *Ann. Bien.* 2. *Caudatus. An.*
3. *Raphanistrum.* England and other parts of Europe. *Ann.*
4. *Sibiricus.* Siberia. *Ann.*
5. *Tenellus.* Deserts of the Caspian. *Ann.*
6. *Arcuatus.* *Ann.* 7. *Lanceolatus.* Antilles.
8. *Pilosus.* Guinea.
*9. *Recurvatus.* Egypt.
*10. *Turgidus.* Egypt.
*11. *Petrocarpus.* Egypt.
} *Herb.* of Jussieu.
*12. *Cheiranthifolius.* Spain. (Wild. *Fl. Berol.*)
‡ 1239. Erysimum. *Siliq.* columnaris, exactæ tetraëdra. *Cal.* clausus.
1. *Officinale.* Engl. and other pts. of Eur. *Ann.*
2. *Barbarea.* Engl. and other pts. of Eur. *Per.*
3. *Precox.* England and France. *Bien.*
4. *Alliaria.* Engl. and other pts. of Europe. *Per.*
5. *Repandum.* Spain, Bohemia, Austria, and Thuringia. *Ann.*
6. *Cheiranthoides.* England and other parts of Europe. *Ann.*
7. *Hieracifolium.* Germ. Swed. Denmark. *Bien.*
8. *Odoratum.* Austria and Hungary. *Bien.*
9. *Virgatum.* Portugal and Switzerland. *Bien.*
10. *Diffusum.* Austria, Switzerland, Italy, and Hungary. *Bien.*
11. *Angustifolium.* Sandy parts of Hungary. *Ann.*
12. *Junceum.* Meadows of Hungary. *Ann. Bien.*
13. *Bicorne.* The Canaries. *Ann.*
14. *Quadricorne.* Siberia. *Ann.*
*15. *Grandiflorum.* Algiers. (*Desfont.*)
*16. *Pallens.* Switzerland.
Under this genus Persoon ranks Sp. 1, 2, 3, and 33, of Cheiranthus.
‡ 1240. Cheiranthus. *Germen* utrinque denticulo glandulato. *Cal.* clausus: foliolis duobns basi gibbis. *Semina* plana.
1. *Erysimoides.* Germany, Switzerland, Hungary, and Spain. *Bien.*
2. *Helveticus.* Switzerland and Italy. *Bien.*

Class XV. Tetradynamia.

3. *Alpinus.* Lapland and Siberia. *Peren.*
4. *Lanceolatus.* Tauria.
5. *Cheiri.* England, Switzerland, France, and Spain. *Bien.* *Peren.* *Shrub.*
6. *Fruticulosus.* England and Spain. *Shrub.*
7. *Callosus.* Cape of Good Hope. *Peren.*
8. *Strictus.* Cape of Good Hope. *Peren.*
9. *Tenuifolius.* Madeira. *Shrub.*
10. *Mutabilus.* Madeira. *Shrub.*
11. *Apricus.* Siberia. *Peren.*
12. *Chius.* Chio, Russia. *Ann.*
13. *Maritimus.* Shores of the Mediterranean. *An.*
14. *Parviflorus.* Morocco. *Ann.*
15. *Salinus.* Siberia and Tartary. *Shrub.*
16. *Bicuspidatus.* Armenia.
17. *Incanus.* Spain. *Peren.* *Shrub.*
18. *Fenestralis.* *Bien.*
19. *Annuus.* South of Europe. *Ann.*
20. *Littoreus.* Shores of the Mediterranean. *Ann.*
21. *Contortuplicatus.* Siberia.
22. *Leucanthemus.* North of Persia.
23. *Tristis.* Spain, Italy, Montpellier. *Shrub.*
24. *Trilobus.* Spain and the Hieres Isles. *Ann.*
25. *Pulchellus.* Cappadocia. *Peren.*
26. *Pinnatifidus.* Siberia.
27. *Tricuspidatus.* Sea coasts of Italy. *Ann.*
28. *Tomentosus.* At the Caspian Sea. *Bien.*
29. *Odoratissimus.* Tauria and Persia. *Shr.*
30. *Sinuatus* England, Spain, Montpellier. *Ann.*
31. *Taraxacifolius.* Siberia near the banks of the Wolga, in inundated parts.
32. *Cuspidatus.* At the Caspian Sea. *Bien.*
33. *Quadrangulus.* Siberia. *Peren.*
34. *Farsetia.* Egypt, Barbary, and Arabia. *Shr.*
* 35. *Bithynicus.* Asia Minor. (*Herb.* of Juss.)
* 36. *Carnosus.* * 39. *Elongatus.*
* 37. *Linearis.* * 40. *Torulosus.*
* 38. *Gramineus.*
* 41. *Frutescens.* Teneriffe. } Vent. *Malm.*
* 42. *Longifolius.* Teneriffe. } p. 83.
* 43. *Semperflorens.* Morocco. *Shrub.*
* 44. *Linifolius.* Spain. *Peren.*

‡ 1242. Hesperis. *Pet.* oblique flexa. *Gland.* intra stam. breviora. *Siliqua* stricta. *Stig.* basi bifurca apice connivente. *Cal.* clausus.

1. *Tristis.* Hungary and Austria. *Bien.*
2. *Laciniata.* Piedmont. *Bien.*
3. *Matronalis.* Germ. Switz. Siberia. *Bien.*
4. *Inodora.* Engl. Vienna, Montpellier. *Bien.*
5. *Tatarica.* Siberia. *Peren.*
6. *Africana.* Africa, France, Hungary. *Ann.*
7. *Ramosissima.* Algiers and Galatia. *Ann.*
8. *Arenaria.* At Arzean in Algiers.
9. *Verna.* Coasts of Provence. *Ann.*
10. *Lacera.* Portugal and France. *Ann.*
* 11. *Lyrata.* Siberia. *Ann.* (Lam. *Ill.*)
* 12. *Laxa.* Tartary. *Ann.* (Lam. *Enc.*)
* 13. *Alyssoides.* Portugal. (*Herb.* of Desfont.)
* 14. *Maritimus* Europe. *Ann.*
* 15. *Pinnatifida.* N. America. (*Mich.* ii. 31.)
* 16. *Pinnata.* At the lake Baikal (*Herb.* of Juss.)
* 17 *Glandulosa.* Dauria. } *Patrin.*
* 18. *Cheiranthus.* Dauria. }
* 19. *Chius.* (*Cheiranthus chius* of Willd.)

1243. Arabis. *Glandulæ* nectariferæ 4, singulæ intra cal. foliola, squamæ instar reflexæ.

1. *Alpina.* Switz. Austria, Lapland. *Peren.*
2. *Grandiflora.* Siberia. *Peren.*
3. *Thaliana.* Engl. and other pts. of Eur. *Ann.*
4. *Crantziana.* Austria and Franconia.
5. *Recta.* Spain and south of France. *Ann.*
6. *Serpyllifolia.* Rocks of Dauphiny. *Bien.*
7. *Reptans.* Virginia. *Peren.*
8. *Cærulea.* Switzerland, Salzburg, Carinthia, and Piedmont. *Peren.*
9 *Bellidifolia.* Italy, Switz. Austria. *Peren.*
10. *Nutans.* Austria, Switz. and Italy. *Peren.*
11. *Lyrata.* Canada. *Ann.*
12. *Hispida.* Britain, Austria, Norway. *Peren.*
13. *Stricta.* Engl. Italy, Switz. France. *Per.*
14. *Halleri.* Carniola. *Bien.*
15. *Ovirensis.* Mountains of Carinthia. *Peren.*
16. *Canadensis.* Canada.
17. *Lucida.* South of Hungary. *Peren.*
18. *Pendula.* Siberia and Denmark. *Ann.*
19. *Turrita.* England, Switzerland, Hungary, France, and Sicily. *Ann.*
20. *Saxatilis.* S. of France and Italy. *Bien.*
21. *Aspera.* Piedmont. *Peren.*
* 22. *Tuberosa.* North America. } Persoon's
* 23. *Rhomboidea.* North America. } *Synopsis.*
* 24. *Arenosa.* (*Sisymbrium arenosum* of Willd.)
* 25. *Petræa.* France. (*H. Franc.*)
* 26. *Procurrens.* Bannat and Servia. *Peren.*

‡ 1245. Brassica. *Cal.* erectus, connivens. *Sem.* globosa. *Gland.* inter stam. breviora et pist. interque longiore et calycem.

1. *Orientalis.* England, in the East, Montpellier, Germany, &c. *Ann.*
2. *Austriaca.* Austria and Thuringia. *Ann.*
3. *Campestris.* Engl. and other pts. of Eur. *Ann.*
4. *Arvensis.* Engl. and other pts. of Eur. *Per.*
5. *Alpina.* Germany and Switzerland. *Peren.*
6. *Napus.* England, Gothland, Holland. *Bien.*
7. *Rapa.* England and Holland. *Bien.*
8. *Oleracea.* England. *Bien.*
9. *Richerii.* Dauphiny and Piedmont. *Peren.*
10. *Cretica.* Candia. *Shrub.*
11. *Suffrutica.* North of Africa. *Shrub.*
12. *Chinensis.* China. *Bien.*
13. *Violacea.* China. *Bien.*
14. *Subhastata.* Archipelago Isles. *Ann.*
15. *Polymorpha.* Hungary and Siberia. *Per.*
16. *Teretifolia.* North of Africa.
17. *Erucastrum.* South of Europe. *Ann.*
18. *Eruca.* Switzerland and Austria. *Ann.*
19. *Pinnatifida.* North of Africa.
20. *Elongata.* Hungary. *Bien.*
21. *Cheiranthus.* Dauphiny and Piedmont. *Bien.*
22. *Vesicaria.* Spain. *Ann.*
23. *Lyrata.* North of Africa.
24. *Crassifolia.* Egypt at the Pyramids.
* 25. *Balearica.* Balearic Isles. (*Herb.* of Rich.
* 26. *Subularia.* Portugal. (*Brotero.*)
* 27. *Turgida.* Paris. * 28. *Hirta.* *Ann.*
* 29. *Magellanica.* Sts. of Magellan. (*Herb.* of Juss.

1248. Cordylocarpus. *Cal.* clausus. *Siliq.* toro sa articulata teres, articulo supremo discreto.

1. *Muricatus.* Near Mayane in Algiers. *An*
2. *Lævigatus.* Archipelago Isles.

‡ 1244. Turritis. *Siliq.* longissima, angulata. *Ca* connivens erectus. *Cor.* erecta.

1. *Glabra.* Engl. and other pts. of Eur. *Bie*
2. *Lævigata.* Pennsylvania. *Bien.*

3. *Stricta.* Meadows of Piedmont.
4. *Hirsuta.* Engl. Sweden and Germ. *Bien.*
5. *Patula.* Hills of Hungary. *Ann.*
6. *Pubescens.* Mountains of Algiers.
7. *Ciliata.* Switzerland.
8. *Alpina.* Austria, Gothland. *Bien. Peren.*
* 9? *Planisiliqua.* Switz. and France. (*Persoon.*)

‡ 1236. Dentaria. *Siliq.* elastice dissiliens valvulis revolutis. *Stig.* emarginatum. *Cal.* longitudinaliter connivens.

1. *Enneaphylla.* Austria and Italy. *Ann.*
2. *Glandulosa.* Mts. of Hungary. *Peren.*
3. *Laciniata.* Pennsylvania. *Peren.*
4. *Bulbifera.* Engl. and other pts. of Eur. *Per.*
5. *Microphylla.* Siberia. *Peren.*
6. *Pinnata.* France and Switzerland. *Peren.*
7. *Pentaphyllos.* Mts. of Switzerland. *Peren.*
* 8. *Polyphylla.* Woods of Croatia. (*Pl. Hung.*)
* 9. *Diphylla.* Mts. of Carolina. } Mich. *Flor. Am.* v. 2. p. 30.
* 10. *Concatenata.* New England and Carolina. } Mich. *Flor. Am.* v. 2. p. 30.

1235. Ricotia. *Siliq.* 1-loc. oblonga compressa; valvulis planis.

1. *Ægyptiaca.* Egypt. *Ann.*
* 2. *Cantoniensis.* Canton in China. (*Louriero.*)

Persoon ranks this genus under the order Siliculosæ.

Sect. II. *Calyx open, with Leafets distant above.*

1249. Cleome. *Gland.* nectariferæ 3, ad singulum sinum calycis singulæ, excepto infimo. *Pet.* omnia adscendentia. *Siliq.* 1-loc. 2-valv.

1. *Juncea.* Cape of Good Hope. *Shrub.*
2. *Heptaphylla.* The Indies. *Ann.*
3. *Pentaphylla.* The Indies. *Ann.*
4. *Triphylla.* The Indies. *Ann.*
5. *Polygama.* Jamaica. *Ann.*
6. *Icosandra.* Ceylon. *Ann.*
7. *Viscosa.* Ceylon, Malabar. *Ann.*
8. *Dodecandra.* In the Indies. *Ann.*
9. *Felina.* Ceylon.
10. *Chelidonii.* Near Transchaur.
11. *Gigantea.* Guinea. *Shrub.*
12. *Aculeata.* America.
13. *Spinosa.* South America. *Ann.*
14. *Serrata.* South America. *Ann.*
15. *Ornithopodioides.* Fields near Pera. *Ann.*
16. *Violacea.* Portugal. *Ann.*
17. *Arabica.* Arabia. *Ann.*
18. *Tenella.* East Indies. *Ann.*
19. *Filifolia.* Arabia Felix. *Ann.*
20. *Guianensis.* Coasts of Guiana. *Ann.*
21. *Monophylla.* India. *Ann.*
22. *Capensis.* Cape of Good Hope and India.
23. *Procumbens.* Jamaica and Hispaniola. *Per.*
* 24 *Uniglandulosa.* New Spain. (*Stam.* 14—16.) (*Cavanilles.*)

This genus is given by Persoon under Hexandria.

‡ 1237. Cardamine. *Siliq.* elastice dissiliens valvulis revolutis. *Stig.* integrum. *Cal.* subhians

1. *Bellidifolia.* Engl. Lapland, Norway. *Per.*
2. *Alpina.* Switz. Savoy, Dauph. Carinth. *Per.*
3. *Asarifolia.* The Alps of Italy. *Per.*
4. *Nudicaulis.* Siberia.
5. *Nivalis.* Top of the Altaian Mts. *Peren.*
6. *Resedifolia.* Switz. Pyrenees, Germ. *Per.*
7. *Trifolia.* Switzerland and Lapland. *Per.*
8. *Scutata.* Japan. *Peren.*
9. *Africana.* Africa, Arabia, and Bourbon.
10. *Chelidonia.* Italy.
11. *Thalictroides.* Italy and France. *Bien.*
12. *Macrophylla.* Siberia. *Peren.*
13. *Impatiens.* Engl. and other pts. of Eur. *Bien.*
14. *Parviflora.* Europe and Siberia. *Ann.*
15. *Pensylvanica.* Pennsylvania.
16. *Græca.* Sicily, Corsica, Islands of Greece. *An.*
17. *Hirsuta.* Engl. and other pts. of Europe. *Ann.*
18. *Latifolia.* Spain. *Ann.*
19. *Pratensis.* Engl. and other pts. of Eur. *Per.*
20. *Amara.* Engl. and other pts. of Europe. *Per.*
21. *Granulosa.* Turin. *Per.* 22. *Virginica.* Virg.
* 23. *Spathulata.* High mts. of Carol. } *Mich.* v? p. 30.
* 24. *Rotundifolia.* High mts. of Carol. } *Mich.* v? p. 30.
* 25. *Chenopodifolia.* Monte Video. (*Herb.* of Juss.)
* 26. *Borbonica.* Bourbon. (*Juss.*)
* 27? *Bonariensis.* Buenos Ayres. (*Herb.* of Juss.)
* 28. *Teres.* New England. } *Mich.* v. ii. p. 29.
* 29. *Uniflora.* Near Knoxville. } *Mich.* v. ii. p. 29.
* 30. *Sylvatica.* North of Europe. (*Link.*)
* 31. *Carnosa.* Hungary. (*Pl. Hung.*)

‡ 1246. Sinapis. *Cal.* patens. *Cor.* ungues recti. *Glandula* inter stam. breviora et pist. interque longiora et calycem.

1. *Arvensis.* Engl. and other pts. of Europe. *Ann.*
2. *Orientalis.* In the East. *Ann.*
3. *Brassicata.* China. *Ann.*
4. *Alba.* England, France, Holland. *Ann.*
5. *Nigra.* Engl. and other pts. of Europe. *Ann.*
6. *Pyrenaica.* Pyrenees. *Bien.*
7. *Pubescens.* Sicily. *Shrub.*
8. *Hispida.* Morocco. *Ann.*
9. *Chinensis.* China? *Ann.*
10. *Juncea.* Asia and China. *Ann.*
11. *Allioni.* *Ann.*
12. *Erucoides.* Italy and Spain. *Ann.*
13. *Cernua.* Japan and China. *Ann.*
14. *Hispanica.* Spain. 15. *Japonica.* Japan.
16. *Incana.* Fran. Portugal, Spain, Switz. *Bien.*
17. *Frutescens.* Madeira. *Shrub.*
18. *Radicata.* Hills of Algiers. *Peren.*
19. *Lævigata.* Portugal and Spain. *Bien.*
* 20. *Circinata.* Barbary. } Desfont. *Atl.* ii. 96.
* 21. *Geniculata.* Barbary. } Desfont. *Atl.* ii. 96.
* 22? *Torulosa.* Near Paris. } *Persoon.*
* 23? *Turgida.* Near Paris. } *Persoon.*
* 24. *Maritima.* Pyrenees, Piedmont. (*Fl. Franc.*)
* 25. *Integrifolia.* India. (Willd. *H. Ber.*)
* 26. *Pekinensis.* Cochinchina, Pekin. (*Loureiro.*)

‡ 1238. Sisymbrium. *Siliq.* dehiscens valvulis rectiusculis. *Cal.* et *Cor.* patens.

1. *Nasturtium.* Europe, America, the East. *Per.*
2. *Sylvestre.* England, Switzerland, Germany, and France. *Peren.*
3. *Palustre,* or *Terrestre.* England, Germany, Hungary, France, Lapland, Iceland. *Ann.*
4. *Amphibium.* Engl. and other pts. of Eur. *Per.*
5. *Pyrenaicum.* Pyrenees, Switzerland. *Per.*
6. *Tanacetifolium.* Savoy, Switzerland. *Per.*
7. *Ceratophyllum.* North of Africa. *Ann.*
8. *Coronopifolium.* North of Africa.
9. *Tenuifolium.* Engl. Germ. Fran. Switz. *Per.*
10. *Sagittatum.* Siberia. *Peren.*
11. *Amplexicaule.* Hills of Algiers. *Ann.*
12. *Supinum.* Pers, Spain, Gothland. *Ann.*
13. *Polyceratium.* Switzerland and Italy. *Ann.*
14. *Filifolium.* Siberia at the R. Kama. *Ann.*

Class XV Tetradynamia.

15. *Bursifolium.* Sicily, Italy, Switzerland, and the Pyrenees. *Ann.*
16. *Torulosum.* In the kingdom of Tunis.
17. *Murale.* France and Italy. *Ann.*
18. *Monense.* Isle of Man, Engl. and Hung. *Per.*
19. *Repandum.* Provence and Piedmont. *Peren.*
20. *Tillieri.* Piedmont. *Bien.*
21. *Vimineum.* Sicily and Montpellier.
22. *Barrelieri.* Spain and Italy. *Ann.*
23. *Arenosum.* Germany and Switzerland. *Ann.*
24. *Valentinum.* Valentia and Madrid. *Ann.*
25. *Parra.* Parra. *Ann. Bien.*
26. *Asperum.* Montpellier and Estremadura. *Ann.*
27. *Laevigatum.* *Ann.*
28. *Millefolium.* Teneriffe. *Shrub.*
29. *Sophia.* Engl. and other pts. of Eur. *Ann.*
30. *Album.* Lake Baikal in Siberia. *Peren.*
31. *Cinereum.* North of Africa. *Ann.*
32. *Altissimum.* Armen. Siber. and Aust. *Ann.*
33. *Eckartsbergense.* Thuringia? *Ann.*
34. *Pannonicum.* Hungary. *Ann.*
35. *Erysimoides.* Tunis near Kerwan.
36. *Irio.* Engl. and other parts of Eur. *Ann.*
37. *Columnae.* Germ. Austria, and Italy. *Ann.*
38. *Loeselii.* Prussia, France, Germany. *Ann.*
39. *Obtusangulum.* Switzerland. *Ann.*
40. *Orientale.* In the East. *Ann.*
41. *Barbareae.* In the East. *Peren.*
42. *Lyratum*, or *Strigosum.* Cape of G. H. *Per.*
43. *Catholicum.* Spain and Portugal.
44. *Heterophyllum.* New Zealand.
45. *Glaciale.* Terra del Fuego. *Peren.*
46. *Strictissimum.* Switz. Italy, and Germ. *Per.*
47. *Pendulum.* North of Africa.
48. *Hispanicum.* Spain. *Bien.*
49. *Pumilum.* North of Persia. *Ann.*
50. *Salsuginosum.* Salt places of Siberia. *Ann.*
51. *Integrifolium.* Siberia. *Ann.*
52. *Indicum.* India. *Ann.*
53. *Hispidum.* Egypt.
* 54. *Bonariense.* Buenos Ayres. (*Enc. Bot.*)
* 55. *Apetalum.* Cochinchina. (*Loureiro.*)
* 56. *Pinnatifidum.* France. (*Fl. Franc.*)
* 57. *Erucastrum.* France and Portugal. (*Brotero.*)
* 58. *Compressum.* Austria. *Bien.*
* 59. *Bellidifolia.* Buenos Ayres. (*Herb.* of Juss.)
* 60. *Capense.* Cape of Good Hope. } Thunb.
* 61. *Serratum.* Cape of Good Hope. } *Prodr.*
* 62. *Contorta.* Syria. (*Herb.* of Desfont.)
* 63. *Dubium.* (Desfont. *Cat.*)

1241. HELIOPHILA. *Nect.* 2 recurvata versus calycis basin vesicularem.
1. *Integrifolia.* *Ann.*
2. *Incana.* *Peren.*
3. *Circaeoides.* *Ann.*
4. *Amplexicaulis.* *Shr.*
5. *Flava.* *Shrub.*
6. *Canescens.*
7. *Pusilla.* *Ann.*
8. *Filiformis.* *Ann.*
9. *Pendula.* *Ann.*
10. *Pinnata.*
11. *Coronopifolia.* *Shr.*
12. *Digitata.*
* 13. *Heterophylla.*
* 14. *Tripartita.*
* 15. *Dissecta.*
* 16. *Lyrata.*

All from the Cape. See Thunb. *Prodr.*

NEW GENERA.

SILICULOSA.

New Genera.

I. LAELIA. *Silic.* nucumentacea, evalvis, rotunda, rugosa, 1-loc. 1-sperma. *Fil.* simplicia.
1. *Iberioides.* North of Portugal. (*Brotero.*)

This genus contains also Sp. 5 and 11 of BUNIAS.

II. RAPISTRUM. *Silic.* subglobosa, nucumentacea (non emarginata) 2-loc. evalvis seu non sponte dehiscens. *Dissepiment.* membranaceum, valvis parallelum. *Sem.* solitaria.
1. *Paniculatum.* (*Myagrum panic.* of Linn.)

III. SUCCOWIA. *Stylus* conicus persistens, induratus. *Stig.* radiatum. *Silic.* globosa, echinata, dissepimento distincta. *Sem.* ovata, emarginata. (Moench. *Meth.* p. 265.)
1. *Balearica.* Balearic Isles. *Ann.*

‡ IV. SENEBIERA: *Silic.* reniformis compressa, corrugata: loc. evalvibus, 1-spermis.
1. *Integrifolia.* Madagascar. (*Decand.*)
2. *Serrata.* Monte Video. (*Enc. Bot.* vii. 76.)
3. *Didyma.* (*Coronopus didymus* of Smith.)
4. *Coronopus.* (*Coronopus ruellii* of Smith.)

V. PSYCHINE. *Cal.* 4-phyll. deciduus. *Stig.* simp. *Silic.* polysperma, 3-angularis margine alis latis instructa: alis superne crescentibus, transverse striata.
1. *Stylosa.* (*Thlaspi psychine* of Willd.)

VI. CAMELINA. *Stam.* edentata. *Styl.* sublongus. *Silic.* membranacea (glabra) ovata, aut rotunda, 2-valvis polysperma. *Sem.* oblonga, laxe striata, nec membrana alata.

This genus contains Sp. 7, 8, 9, and 11, of MYAGRUM, p. 259.

CLASS XVI. MONADELPHIA.

TRIANDRIA.

Class XVI. Monadelphia.

1255. GALAXIA. *Spatha* 1 seu 2-phylla. *Cal.* 0. *Cor.* 1-pet. 6-fid. tubo longo. *Styl.* 1. *Caps.* 3-loc. infera.
1. *Ovata.* Cape of Good Hope. *Peren.*
2. *Graminea.* Cape of Good Hope. *Peren.*
3. *Narcissoides.* Straits of Magellan. *Peren.*
* 4. *Ciliata.* (Andrews' *Rep.*)

This genus is given by Persoon under TRIANDRIA.

1256. SISYRINCHIUM. *Spatha* diphylla. *Cal.* 0. *Pet.* 6. subaequalia. *Styl.* 1. *Caps.* 3-loc. infera.
1. *Elegans.* Cape of Good Hope. *Peren.*
2. *Collinum.* Cape of Good Hope. *Peren.*
3. *Grandiflorum.* Peru. *Peren.*
4. *Bermudiana.* Bermudas. *Peren.*
5. *Anceps.* Virginia and Canada. *Peren.*
6. *Micranthum.* Peru. *Peren.*
7. *Palmifolium*, or *Racemosum.* Brasil. *Per.*
8. *Striatum.* Mexico. *Peren.*
* 9. *Mucronatum.* Pennsylvania. (*Mich.*)

Persoon includes in this genus (which he gives under TRIANDRIA.) Sp. 7 and 12, of MORAEA; and Sp. 4. of FERRARIA.

Class XVI, Monadelphia.

1252. Ferraria. *Spatha* 2-phyll. *Cal.* 0. *Pet.* 6, 3 externis latioribus. *Syl.* 1. *Caps.* 3-loc. infera.
1. *Undulata*, or *Punctata*. Cape of G. H. *Per.*
2. *Ferrariola*, or *Minor*. Cape of G. H. *Per.*
3. *Pavonia.* Mexico and Peru. *Peren.*
4. *Ixioides.* New Zealand. *Peren.*

This genus is given by Persoon under Triandria.

1254. Aphyteja. *Cal.* magnus infundib. 3-fid. *Pet.* 3, calyci inserta illoque breviora. *Germ.* inferum. *Bac.* 1-loc. polysperma. *Sem.* nidulantia.
1. *Hydnora.* Cape of Good Hope.

1250. Tamarindus. *Cal.* 4-part. *Pet.* 3. *Nect.* setis 2 brevibus sub filamentis. *Styl.* 1. *Legum.* pulpa repletum.
1. *Indica.* India, Arabia, Egypt, America. *Shr.*

Pentandria.

‡ 1263. Erodium. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* squamulæ 5 cum fil. alternantes et *gland.* melliferæ basi stam. insidentes. *Arilli* 5, 1-spermi aristati at basin recept. rostrati: aristis spiralibus introrsum barbatis.
1. *Crassifolium.* Cyprus and N. Africa. *Per.*
2. *Stephanianum.* Dauria.
3. *Tataricum.* Tartary and Siberia. *Peren.*
4. *Supracanum.* Spain. *Peren.*
5. *Petræum.* Rocks in the south of France. *Per.*
6. *Absinthoides.* Armenia. *Peren.*
7. *Glandulosum.* Spain.
8. *Bipinnatum.* Sandy parts of Barbary. *Ann.*
9. *Alpinum.* The Alps of Italy. *Peren.*
10. *Ciconium.* Montpellier, Spain, Italy, &c. *An.*
11. *Cicutarium.* Engl. and other pts. of Eur. *Ann.*
12. *Pimpinellifolium.* Germany and France. *Bien.*
13. *Romanum.* Rome. *Ann.*
14. *Moschatum.* England, Carniola, Switzerland, Siberia, Barbary, Cape, Brasil, Peru. *Ann.*
15. *Præcox.* Spain. *Ann.*
16. *Pulverulentum.* Spain, N. of Africa. *Per.*
17. *Hirtum.* Egypt. *Peren.*
18. *Laciniatum.* Candia and N. of Africa.
19. *Gruinum.* Cand. N. of Africa, Italy, Spain. *An.*
20. *Chium.* Chio. *Ann.*
21. *Asplenioides.* North of Africa. *Peren.*
22. *Hymenodes.* Mount Atlas. *Peren.*
23. *Murcicum.* Murcia. *Ann.*
24. *Guttatum.* North of Africa. *Peren.*
25. *Glaucophyllum.* Egypt near Memphis. *Ann.*
26. *Incarnatum.* Cape of Good Hope. *Shrub.*
27. *Arduinum.* Cape of Good Hope. *Per.*
28. *Ribifolium.* Cape of Good Hope. *Ann.*
29. *Arborescens.* North of Africa. *Shrub.*
30. *Heliotropiodes.*
31. *Malacoides.* France, Spain, Italy, and the Canary Isles. *Ann.*
32 *Maritimum.* England. *Peren.*
33. *Malopoides.* Algiers and Sicily. *Peren.*
34. *Chamædryoides.* Minorca and Corsica. *Per.*
* 35. *Corsicum.* Corsica. } Decand. *Fl. Franc.*
* 36. *Littoreum.* France. } Decand. *Fl. Franc.*
* 37? *Præcox.* Spain. (*Cavanilles.*)

1256. Symphonia. *Cal.* 5 phyll. *Cor.* 5 pet. globosa contorta. *Styl.* 1. *Bac.* 5 loc. locul. 1-spermis.
1. *Globulifera.* Woods and mts. of Guiana. *Shr.*

1255. Ozophyllum. *Cal.* 5 dent. *Cor.* 5-pet. infundib. *Styl.* 1. *Caps.* 5-loc.
1. *Trifoliatum.* Woods of Guiana. *Shrub.*

1261. Ochroma. *Cal.* duplex: exterior 3-phyll. *Pet.* 5. *Anth.* anfractuosæ! *Caps.* 5-loc. polysperma. *Sem.* lana involuta.
1. *Lagopus.* Mts. of Jamaica, Hispaniola. *Shr.*

1257. Lerchea. *Cal.* 5-dent. *Cor.* infundib. 5 fida. *Anth.* germinis *tubo* insidentes 5. *Styl.* 1. *Caps.* 3-loc. polysperma.
1. *Longicauda.* East Indies. *Shrub.*

1258. Waltheria. *Cal.* duplex. ext. lateralis 3-phyll. deciduus. *Pet.* 5. *Styl.* 1. *Caps.* 1-loc. 2 valv. 1-sperma.
1. *Americana.* Bahama, Berbice, Surinam. *Shr.*
2. *Indica.* India. *Shrub.*
3. *Lopanthus.* Maquesa Islands.
4. *Ovata.* Peru. *Shrub.*
5. *Angustifolia.* East Indies. *Shrub.*
6. *Elleptica.* East Indies. *Shrub.*
* 7. *Corchorifolia.* Rio Janeiro. (*Herb.* of Juss.)

1262. Passiflora. *Cal.* 5-part. coloratus. *Cor.* 5-pet. calyci inserta. *Nect.* corona filamentosa. *Pepo* pedicellata.
1. *Serratifolia.* Surinam. *Shrub.*
2. *Pallida.* Dominica and Brasil. *Shrub.*
3. *Adulterina.* New Granada. *Shrub.*
4. *Cuprea.* Providence and Bahama. *Shrub.*
5. *Tiliæfolia.* Peru and Lima. *Shrub.*
6. *Maliformis.* Dominica, Martinique, Jamaica, and Cayenne. *Shrub.*
7. *Quandrangularis.* Woods of Jamaica. *Shrub.*
8. *Alata.* West Indies. *Shrub.*
9. *Laurifolia.* Surinam. *Shrub.*
10. *Coccinea.* Guiana. *Shrub.*
11. *Mucronata.* Brasil. *Shrub.*
12. *Glandulosa.* Cayenne. *Shrub.*
13. *Multiflora.* Dominica. *Shrub.*
14. *Perfoliata.* South of Jamaica. *Shrub.*
15. *Rubra.* Jamaica, Dominica, Martinique, and Cayenne. *Shrub.*
16. *Normalis.* South America. *Shrub.*
17. *Lunata.* Jamaica, Mexico. *Shrub.*
18. *Murucuja.* Dominica. *Shrub.*
19. *Vespertilio.* America. *Shrub.*
20. *Oblongata.* Jamaica. *Shrub.*
21. *Capsularis.* Equinoctial France. *Shrub.*
22. *Rotundifolia.* South America. *Shrub.*
23. *Orbiculata.* Island of Dominica. *Shrub.*
24. *Punctata.* Peru. *Shrub.*
25. *Lutea.* Virginia and Jamaica. *Shrub.*
26. *Angustifolia.* Jamaica. *Shrub.*
27. *Minima.* Curaçoa. *Shrub.*
28. *Suberosa.* Dominica and the Antilles. *Shr.*
29. *Peltata.* Antilles. *Shrub.*
30. *Hederacea.* Antilles in hedges. *Shrub.*
31. *Glauca.* Cayenne. *Shrub.*
32. *Holosericea.* Vera Cruz. *Shrub.*
33. *Hirsuta.* Dominica and Curaçoa. *Shrub.*
34. *Fœtida.* Dominica, Martinique, Curaçoa. *An.*
35. *Ciliata.* Jamaica. *Shrub.*
36. *Serrulata.* Woods of Carthagena. *Shrub.*
37. *Aurantia.* New Caledonia. *Shrub.*
38. *Cuneifolia.* America. *Shrub.*
39. *Incarnata.* Virginia, Brasil, Peru. *Shrub.*
40. *Tomenta.* Peru. *Shrub.*
41. *Mixta.* New Granada and Peru. *Shrub.*
42. *Cœrulea.* Brasil. *Shrub.*
43. *Filamentosa.* America. *Shrub.*

Class XVI. Monadelphia.

44. *Serrata.* Martinique. *Shrub.*
45. *Pedata.* Dominica. *Shrub.*
46. *Heterophylla.* St Domingo. *Peren.*
* 47. *Glauca.* Mt. Quindiu near La Volza. } Humboldt.
* 48. *Emarginata.* Near Popayan in Andes. }
* 49. *Guazumæfolia.* Carthagena and Granada. *Shr.*
* 50. *Ligularis.* Peru. *Shrub.*
* 51. *Tinifolia.* Cayenne. *Shrub.*
* 52. *Bilobata.* St Domingo. *Shrub.*
* 53. *Mexicana.* Mexico. *Shrub.*
* 54. *Coriacea.* Peru near Florida. *Shrub.*
* 55. *Sexflora.* St Domingo. *Shrub.*
* 56. *Hibiscifolia.* South America. *Shrub.*
* 57. *Stipulata.* Guiana at Mt. Serpent. *Shrub.*
* 58. *Pinnati-stipula.* At Fulcahuana and Valparaiso. *Shrub.*
* 59. *Manicata.* S. America near Loxa. *Shrub.*
* 60. *Viridiflora.* Near Acapulco. (*Cavan.*)
* 61. *Longipes.* N. Granada and Mt. Quindiu.
* 62. *Cirrhiflora.* Woods of Guiana.

For an account of these new species, see Jussieu *Du Genre Passiflora in Annal. du Museum.* vol. ii. p. 112.

1259. Hermannia. *Cal.* simplex 5-fid. *Pet.* 5-spiraliter cucullata. *Fil.* lanceolata. *Styli.* 5. *Caps.* 5-loc. polysperma.

1. *Althæifolia.*
2. *Plicata.*
3. *Candicans.*
4. *Disticha.*
5. *Salvifolia.*
6. *Micans.*
7. *Involucrata.*
8. *Scordifolia.*
9. *Denudata.*
10. *Disermæfolia.*
11. *Alnifolia.*
12. *Cuneifolia.*
13. *Holosericea.*
14. *Hirsuta.*
15. *Scabra.*
16. *Multiflora.*
17. *Flammea.*
18. *Angularis.*
19. *Hyssopifolia.*
20. *Trifurcata.*
21. *Odorata.*
22. *Lavandulifolia.*
23. *Linifolia.*
24. *Filifolia.*
25. *Trifoliata.*
26. *Triphylla.*
27. *Procumbens.*
28. *Vesicaria.*
29. *Grossularifolia.*
30. *Incisa.*
* 31. *Pulverata.* (Andrews' *Rep.* t. 16.)

All shrubby, and from the Cape.

1260. Melochia. *Cal.* subduplex. *Pet.* 5 patentia. *Fil.* subulata. *Styli.* 5. *Caps.* 5-loc. 1-sperma.

1. *Pyramidata.* Brasil and Caribbee Isles. *Shr.*
2. *Tomentosa.* Jamaica and Dominica. *Shrub.*
3. *Crenata.* South America. *Shrub.*
4. *Depressa.* Havannah.
5. *Truncata.* East Indies. *Shrub.*
6. *Venosa.* Jamaica. *Shrub.* 7. *Hirsuta.*
8. *Concatenata.* East and West Indies. *Per.*
9. *Odorata.* Island of Tanna and Ea-uwa.
10. *Lupulina.* Jamaica. *Shrub.*
11. *Caracasana.* Caraccas. *Shrub.*
12. *Nodiflora.* Jamaica, Bourbon, Mauritius. *Shr.*
13. *Corchorifolia.* India. *Ann.*
14. *Supina.* India.
* 15. [illegible] South America. (Desf. *Cat.*)

Heptandria.

1261. Pelargonium. *Cal.* 5-part. lacinia suprema desinente in tubulum capillarem nectariferum secus pedunculum decurrentem. *Cor.* 5-pet. irregularis. *Fil.* 10 inæqualia, quorum 3 (raro 5) castrata. [illegible] 5 1-sperma aristati ad basin recept. rostrati, aristis spiralibus introrsum barbatis.

1. *Longifolium.*
2. *Longiflorum.*
3. *Dipetalum.*
4. *Oxaloides.*
5. *Ficaria.*
6. *Ciliatum.*
7. *Auriculatum.*
8. *Auritum.*
9. *Hirtum.*
10. *Punctatum.*
11. *Bifolium.*
12. *Hirsutum.*
13. *Atrum.*
14. *Trifidum.*
15. *Heterophyllum.*
16. *Triphyllum.*
17. *Nervifolium.*
18. *Pinnatum.*
19. *Barbatum.*
20. *Melananthon.*
21. *Carneum.*
22. *Rapaceum.*
23. *Lobatum.*
24. *Triste.*
25. *Appendiculatum.*
26. *Flavum.*
27. *Oenotheræ.*
28. *Chamædrifolium.*
29. *Ovale.* *Per.*
30. *Trichostomon.* *Pe.*
31. *Blattarium.* *Per.*
32. *Eriostemon.* *Per.*
33. *Elegans.* *Per.*
34. *Stipulaceum.* *Shr.*
35. *Articulatum.* *Per.*
36. *Tabulare.* *Per.*
37. *Alchimilloides.* *Pe.*
38. *Odoratissimum.* *Pe.*
39. *Grossularioides.* *P.*
40. *Anceps.* *Per.*
41. *Althæoides.* *Ann.*
42. *Columbinum.* *Per.*
43. *Coronopifolium.* *P.*
44. *Cappillare.* *Per.*
45. *Tricolor,* or *Violaceum.* *Per.*
46. *Senecioides.* *Ann.*
47. *Myrrhifolium.* *Per.*
48. *Lacerum.* *Peren.*
49. *Multicaule.* *Per.*
50. *Coriandrifolium.* *Bien.* *Peren.*
51. *Caucalifolium.* *Per.*
52. *Minimum.* *Per.*
53. *Glaucum.*
54. *Diversifolium.*
55. *Betulinum.*
56. *Acetosum.*
57. *Scandens.*
58. *Stenopetalum.*
59. *Hybridum.*
60. *Zonale.*
61. *Inquinans.*
62. *Heterogamum.*
63. *Monstrum.*
64. *Crassicaule.*
65. *Peltatum.*
66. *Lateripes.*
67. *Tetragonum.*
68. *Cordatum.*
69. *Cucullatum.*
70. *Angulosum.*
71. *Acerifolium.*
72. *Papilionaceum.*
73. *Cortusæfolium.*
74. *Fuscatum.*
75. *Saniculæfolium.*
76. *Patulum.*
77. *Grandiflorum.*
78. *Variegatum.*
79. *Cotyledonis.*
80. *Echinatum.*
81. *Australe.*
82. *Vitifolium.*
83. *Capitatum.*
84. *Glutinosum.*
85. *Hispidum.*
86. *Tomentosum.*
87. *Ribifolium.*
88. *Quercifolium.*
89. *Graveolens.*
90. *Asperum.*
91. *Balsameum.*
92. *Radula.*
93. *Denticulatum.*
94. *Bicolor.*
95. *Tricuspidatum.*
96. *Scabrum.*
97. *Spinosum.*
98. *Rigidum.*
99. *Crispum.*
100. *Hermanniæfolium.*
101. *Adulterinum.*
102. *Semitrilobum.*
103. *Tripartitum.*
104. *Fulgidum.*
105. *Gibbosum.*
106. *Exstipulatum.*
107. *Ternatum.*
108. *Lævigatum.*
109. *Fragile.*
110. *Incanum.*
111. *Carnosum.*
112. *Ferulaceum.*
113. *Alternans.*
114. *Ceratophyllum.*
115. *Crithmifolium.*
116. *Ramosissimum.*
117. *Abrotanifolium.*
118. *Fruticosum.*
119. *Hirtum.*
120. *Tenuifolium.*
* 121. [illegible]
* 122. *Spathulatum.*
* 123. *Radiatum.*
* 124. *Undulatum.*
* 125. *Virgineum.*
* 126. [illegible]
* 127. [illegible]
* 128. [illegible]
* 129. *Pictum.*
* 130. *Punctatum.*
* 131. *Purpurascens.*
* 132. [illegible]
* 133. [illegible]
* 134. *Coronillæfolium.*

olium. *144. *Reniforme.*
um. *145. *Canum.*
æfolium. *146. *Quinatum.*
m. *147. *Inodorum.*
n. *148. *Procumbens.*
satum. *149. *Beaufortianum.*
re. *150. *Quinquevulnerum.*
iatum. *151. *Canariense.*
llum. *152? *Formosissimum.*
0 shrubby. For an account of the new
ee Andrews' *Repository*. All from the
cept Sp. 79 from St Helena, and Sp.
New Holland.

OCTANDRIA.

A. *Cal.* 4-part. *Cor.* 4-pet. *Styl.* 1.
-angularis 1-loc. polysperma.
sis. Cape of Good Hope. *Shrub.*
. *Cal.* spatha tubuloso-cucullata lin-
r. 0. *Fil.* laterale. *Anth.* 3-8. *Styl.* 1.
. polysperma.
tes. Asia, Africa, and America. *Per.*

DECANDRIA.

NIUM. *Cal.* 5-phyll. *Cor.* 5-pet. re-
ect. glandulæ 5 melliferæ, basi longio-
torum adnatæ. *Arilli* 5 1-spermi aris-
in recept. rostrati; *Aristis* nudis sim-
ec spiralibus nec barbatis.)
um. Cape of Good Hope. *Shrub.*
florum. Straits of Magellan. *Peren.*
um. Siberia and China. *Peren.*
ineum. Engl. and other pts. of Eur. *Per.*
osum. Italy. *Peren.*
nefolium. Madeira. *Shrub.*
rhizum. Italy and Carinthia. *Peren.*
n. England, Hungary, Switzerland,
yria. *Peren.*
n. South of Europe. *Shrub.*
um. Italy. *Peren.*
m. Switzerland and France. *Peren.*
um. Engl. and S. of France. *Peren.*
m. Italy. *Peren.*
tum. *Peren.*
m. Spain. *Peren.*
icum. Engl. and other pts. of Eur. *Per.*
re. Engl. Russia, and Germ. *Peren.*
leloides. Greece, in the East. *Peren.*
ifolium. Switz. and Dauphiny. *Per.*
m. Siberia. *Peren.*
se. England and other parts of Eu-
Peren.
atum. Carol. Siber. and Virg. *Peren.*
m. New Zealand.
ens. Cape of Good Hope. *Peren.*
m. Cape of Good Hope. *Peren.*
teum. Fran. Italy, and Carinthia. *Per.*
n. Pyrenees. *Peren.*
aicum. Britain and France. *Peren.*
icum. Bohemia and Silesia. *Ann.*
catum. Hungary and Siberia. *Ann.*
m. Engl. and other pts. of Eur. *Ann.*
Eng. and other pts. of Eur. *Ann.*
nianum. Carolina and Virginia. *Ann.*
binum. Engl. Fran. Switz. Germ. *Ann.*

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35. *Dissectum.* Engl. and other pts. of Eur. *Ann.*
36. *Rotundifolium.* England and other parts of Europe. *Ann.*
37. *Pusillum.* Engl. Fran. Germ. Switz. *Ann.*
38. *Robertianum.* England, Europe, and Arabia Felix. *Ann.*
39. *Purpureum.* Dauphiny and England. *Bien.*
*40? *Venosum.* (Curt. *Mag.* t. 203.)
*41. *Umbrosum.* Hungary. (*Pl. Hungar.*)
*42? *Batrachioides.* (*Cavan.* iv. p. 211. t. 85.)

1270. SENRAEA. *Cal.* duplex, ext. 3-phyll. int. 6-dent. *Cor.* 5-pet. *Styl.* 5-fid. *Caps.* 5-loc.
1. *Incana.* Arabia.

1267. CRINODENDRUM. *Cal.* 0. *Cor.* 6-pet. campan. *Styl.* 1. *Caps.* 1-loc. 3-sperma trigona apice elastice dehiscens.
1. *Patagua.* Chili. *Shrub.*

1268. CONNARUS. *Cal.* 5-part. *Cor.* 5-pet. *Styl.* 1. *Caps.* 2-valv. 1-loc. 1-sperma.
1. *Africanus.* Sierra Leone. *Shrub.*
2. *Asiaticus.* East Indies. *Shrub.*
3. *Pentagynus.* Madagascar, Guinea. *Shrub.*
4. *Decumbens.* Cape of Good Hope. *Shrub.*
5. *Pinnatus.* East Indies. *Shrub.*
6. *Santaloides.* East Indies. *Shrub.*
7. *Mimosoides.* Island of Nicobar. *Shrub.*

1269. HUGONIA. *Cal.* 5-part. inæqualis. *Cor.* 5-pet. *Styl.* 5. *Drupa* 1-sperma nuce striata sub-10-loc.
1. *Mystax.* Malabar and Ceylon. *Shrub.*
2. *Serrata.* Mauritius. *Shrub.*
3. *Tomentosa.* Mauritius. *Shrub.*

ENDECANDRIA.

1272. BROWNEA. *Cal.* tubulosus. 2-fid. *Cor.* duplex; ext. 5-fida; int. 5-pet. *Legum.* 1-loc.
1. *Coccinea.* At the gulf of Venezuela in America. *Shrub.*
2. *Grandiceps.* Woody mts. of the Caraccas. *Shr.*
3. *Rosa de Monte.* Terra Firma, Porto-Bello. *Shrub.*
4. *Pauciflora.* Woods of Guiana. *Shrub.*

DODECANDRIA.

1274. MONSONIA. *Cal.* 5-phyll. *Cor.* 5-pet. *Stam.* 15-connata, urceolo filamentorum 5-fid. *Styl.* 5-fidus. *Arilli* 5 1-spermi aristati ad basin recept. rostrati.
1. *Tenuifolia.* *Per.*
2. *Speciosa.* *Peren.*
3. *Lobata.* *Peren.*
4. *Ovata.* *Bien.*
5. *Spinosa.* *Shrub.*
*6. *Filia.*

All from the Cape but Sp. 5.

1276. HELICTERES. *Cal.* tubulosus, oblique 5-fid. *Cor.* 5-pet. *Germ.* longissime, pedicellatum. *Styl.* sub-5-fid. *Caps.* 5, 1-loc. polyspermæ spiraliter contortæ.
1. *Baruensis.* Baru and the Isthmus of Panama. *Shrub.*
2. *Jamaicensis.* Jamaica. *Shrub.*
3. *Isora.* Malabar and the Moluccas. *Shrub.*
4. *Hirsuta.* Plains of Cochinchina. *Shrub.*
5. *Angustifolia.* China. *Shrub.*
6. *Pentandra.* Surinam. *Shrub.*
7. *Carthagenensis.* Woods of Carthagena. *Shr.*
8. *Apetala.* Woods of Carthagena. *Shrub.*
*9. *Proniflora.* Cayenne. (*Stam.* 6.) (*Rich.*)

[illegible]

[illegible] Madeira. Shrub.

[illegible] Cape of Good Hope.

[illegible] East Indies. [illegible]

[illegible] Dominica.

[illegible] Island of [illegible]. Shrub.

[illegible] E. Indies and Jamaica. Sh.

[illegible] Senegal. Shrub.

[illegible] Tranquebar, Amboyna, Philippines and [illegible]. *Ann.*

[illegible] East Indies. *Ann.*

[illegible] Jamaica and Dominica. *Shrub.*

[illegible] Amer. Ceylon. *Ann.* and *Shr.*

24. [illegible] Warm parts of Peru. *Shrub.*

25. [illegible] Hispaniola. *Shrub.*

26. [illegible] Peru and Dominica. *Shrub.*

27. [illegible] Warm parts of America. *Shr.*

28. *Fragrans.* Hispaniola. *Shrub.*

29. *Lignosa.* Dominica. *Shrub.*

30. [illegible] Sandy places of Peru. *Shrub.*

31. *Humilis.* East Indies. *Ann.*

32. *Repens.* Peru, particularly Lima.

33. *Bivalvis.* Dominica.

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34. *Ulmifolia.* Dominica.
35. *Multiflora.* Brasil.
36. *Microsperma.* *Peren.*
37. *Viscosa.* Jamaica. *Shrub.*
38. *Fœtida.* Peru. *Ann.*
39. *Calycina.* Bourbon.
40. *Crispa.* Carolina, Providence, and the Bahamas. *Ann.*
41. *Persica.* Persia.
42. *Sylvatica:* At the R. Maragnon in Peru. *Shr.*
43. *Arborea.* Peru. *Shrub.*
44. *Mauritania.* Mauritius. *Shrub.*
45. *Occidentalis:* America. *Ann.*
46. *Americana.* Jamaica.
47. *Abutilon.* Switz. Siberia, and Indies. *Ann.*
48. *Abutiloides Americana.* Jamaica. *Ann.*
49. *Asiatica.* India. *Ann.*
50. *Populifolia.* East Indies. *Ann.*
51. *Hirta.* East Indies. *Ann.*
52. *Indica.* East Indies. *Ann.*
53. *Molissima.* At the R. Maragnon in Peru. *Shr.*
54. *Sonneratiana.* Cape of Good Hope.
55. *Pubescens.* Dominica.
56. *Althæifolia.* South of Jamaica. *Shrub.*
57. *Glutinosa.* Mauritius.
58. *Exstipularis.* Bourbon. *Shrub.*
59. *Nutans.* Sandy parts of Peru. *Peren.*
60. *Borbonica.* Bourbon.
61. *Flavescens.* Monte Video in Brasil. *Shr.*
62. *Radicans.* East Indies.
63. *Arguta.* South of Jamaica. *Shrub.*
64. *Multicaulis.* Malabar. 65. *Pilosa.* Dominica.
66. *Rotundifolia:* Bourbon.
67. *Supina.* Hispaniola. *Peren.*
68. *Truncata:* Dominica. *Ann.*
69. *Herbacea.* East Indies.
70. *Emarginata.* Hispaniola. *Ann.*
71. *Alba.* East Indies. *Ann.*
72. *Cordifolia.* India, Cape of G. Hope. *Ann.*
73. *Hederifolia.* Dominica.
74. *Verticillata:* Brasil at Rio Janeiro.
75. *Urens.* Jamaica. *Shrub.*
76. *Umbellata.* Jamaica. *Ann.*
77. *Pyramidata:* Dominica.
78. *Paniculata.* Jamaica, Peru, and Brasil.
79. *Dumosa.* South of Jamaica. *Shrub.*
80. *Ramosa.* Senegal.
81. *Spicata.* Dominica. *Shrub.*
82. *Terminalis.* Monte Video. *Shrub.*
83. *Vesicaria.* Mexico. *Shrub.*
84. *Crassifolia.* Hispaniola. *Shrub.*
85. *Biflora.* *Shr.* 87. *Gigantea.* Caraccas. *Shr.*
86. *Obtusa.* 88. *Javensis.* Java.
89. *Hastata.* Mexico and Lima. *Ann.*
90. *Cristata.* Mexico. *Ann.*
91. *Dilleniana.* Mexico. *Ann.*
92. *Triloba.* Cape of Good Hope. *Shrub.*
93. *Ternata.* Cape of Good Hope. *Shrub.*
94. *Pterosperma.* Sandy places in Peru. *Ann.*
95. *Ricinoides.* Peru. *Ann.*
96. *Jatrophoides.* Sandy places in Peru. *Ann.*
97. *Napæa.* Virginia. *Peren.*
98. *Dioica.* Virginia. *Peren.*
99. *Phyllanthus.* Peru. *Peren.*
*100. *Linearis.* New Spain.
*101. *Acuta.* Java.
*102. *Muricata.* New Spain. } Cav. *Ic.* i. p. 15.
*103. *Bicolor.* New Spain.
*104. *Patula.* Cayenne. (Rich. *Act. S. Par.*)
*105. *Disticha.* New Spain.
*106. *Tridentata.* St Dominica. } Cav. *Ic.* v. p. 12.
*107. *Multiflora.* Ditto. *Shr.*
*108. *Gracilis.* Antilles. (Rich. *Id.*)
*109. *Tomentosa.* America. (*Cav.*)
*110. *Mollis.* Peru. *Shrub.* } Ortega, *Decad.* 96.
*111. *Crenatiflora.* N. Spain.
*112. *Heterophylla.* Chili. } Cav. *Ic.* v. p. 12.
*113. *Vitifolia.* Chili.
*114. *Sericea.* (Cav. *Descrip. et Hort. R. M.*)
*115. *Alceoides.* Kentucky. (*Mich.* ii. 44.)
*116. *Pinnata.* Foot of Chimborazo. } Cav. *Ic.* v. p. 13.
*117. *Acaulis.* Foot of Chimborazo.

1284. BOMBAX. *Cal.* 5-fid. *Stam.* 5 seu multa. *Caps.* lignosa, 5-loc. 5-valv. *Sem.* lanata. *Recept.* 5-gonum.
1. *Pentandrum.* East Indies and America. *Shr.*
2. *Erianthos.* Brasil, near St Sebastian. *Shr.*
3. *Ceiba.* America. *Shrub.*
4. *Heptaphyllum.* America. *Shrub.*
5. *Globosum.* Cayenne. *Shrub.*
6. *Gossypinum.* East Indies. *Shrub.*

1283. ADANSONIA. *Cal.* simplex, deciduus. *Styl.* longissimus. *Stig.* plura. *Caps.* lignosa, 10-loc. pulpa farinacea, polysperma.
1. *Digitata.* Senegal and Egypt. *Shrub.*

1296. GOSSYPIUM. *Cal.* duplex, ext. 3-fid. *Caps.* 4-loc. *Sem.* lana obvoluta.
1. *Herbaceum.* India, Syria, and Africa. *Ann.*
2. *Indicum.* East Indies. *Ann.* and *Bien.*
3. *Micranthum.* Persia at Ispahan.
4. *Arboreum.* Sandy parts of India. *Shrub.*
5. *Vitifolium.* East Indies. *Shrub.* and *Bien.*
6. *Hirsutum.* America. *Ann.* and *Bien.*
7. *Religiosum.* East Indies. *Shrub.*
8. *Latifolium.* *Bien.* and *Shrub.*
9. *Barbadense.* Barbadoes. *Bien.* and *Shrub.*
10. *Peruvianum.* Peru. *Bien.*

1292. RUIZIA. *Cal.* dup. ext. 3-phyll. *Styl.* 10. *Caps.* 10 1-loc. dispermæ arcte cohærentes.
1. *Cordata.* Bourbon. *Shrub.*
2. *Lobata.* Bourbon. *Shrub.*
3. *Variabilis.* Bourbon. *Shrub.*

‡ 1291. LAVATERA. *Cal.* dup. ext. 3-fid. *Caps.* plurimæ, 1-spermæ.
1. *Arborea.* England. Spain, Africa. *Bien.*
2. *Micans.* Spain and Portugal. *Shrub.*
3. *Hispida.* Hedges in Algiers. *Shrub.*
4. *Olbia.* Provence. *Shrub.*
5. *Triloba.* Spain and France. *Shrub.*
6. *Lusitanica.* Portugal. *Shrub.*
7. *Maritima.* France and Spain. *Shrub.*
8. *Thuringiaca.* Hungary, Tartary, Sweden, and Germany. *Peren.*
9. *Cretica.* Candia. *Ann.*
10. *Flava.* N. of Africa near Mascar. *Ann.*
11. *Punctata.* County of Nice. *Ann.*
12. *Trimestris.* Syria, Spain, and France. *Ann.*
*13. *Unguiculata.* (*Bot. Cultivateur.* iii. 48.)
*14. *Acerifolia.* Teneriffe. (*Persoon.*)

1288. MALACHRA. *Cal.* commun. 3-phyll. multiflor. major. *Caps.* 5, 1-spermæ.
1. *Capitata.* Marshes of the Caribbees. *Ann.*
2. *Fasciata.* Caraccas. *Ann.*
3. *Alceæfolia.* Caraccas. *Ann.*
4. *Radiata.* Dominica. 5. *Bracteata.* America.
6. *Plumosa.* Brasil.

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‡ 1290. MALVA. *Cal.* dup. ext. 3-phyll. *Caps.* plurimæ 1-spermæ.
1. *Spicata.* Jamaica. *Shrub.*
2. *Polystachia.* Peru. *Shrub.*
3. *Tomentosa.* India. *Shrub.*
4. *Scoparia.* Peru. *Shrub.*
5. *Gangetica.* India. *Ann.*
6. *Coromandeliana.* Jamaica. *Ann.*
7. *Americana.* America. *Ann.*
8. *Calycina.* Cape of Good Hope. *Shrub.*
9. *Cuneifolia.* 10. *Angustifolia.* Mexico. *Shr.*
11. *Subhastata.* Brasil at Peru. *Shrub.*
12. *Scabra.* Dry parts of Peru. *Shrub.*
13. *Peruviana.* Peru. *Ann.*
14. *Limensis.* Peru at Lima. *Ann.*
15. *Capitata.* Peru. *Shrub.*
16. *Bryonifolia.* Cape of Good Hope. *Shrub.*
17. *Umbellata.* Mexico. *Shrub.*
18. *Abutiloides.* Bahama Islands. *Shrub.*
19. *Albulensis.* Spain. 20. *Lobata.*
21. *Fastigiata.* Italy.
22. *Bonariensis.* Buenos Ayres.
23. *Stricta.* Cape of Good Hope. *Shrub.*
24. *Lactea.* Mexico. *Shrub.*
25. *Operculata.* Sandy parts of Peru. *Shrub.*
26. *Fragrans.* *Shr.* 31. *Miniata.* *Shrub.*
27. *Capensis.* *Shrub.* 32. *Retusa.* *Shrub.*
28. *Balsamica.* *Shr.* 33. *Tridactylides.* *Shr.*
29. *Grossularifolia.* *Shr.* 34. *Althæoides.* Spain. *An.*
30. *Virgata.* *Shr.* 35. *Caroliniana.* Carol. *Ann.*
36. *Prostrata.* Monte Video.
37. *Cretica.* Candia. *Ann.*
38. *Parviflora.* Barbary. *Ann.*
39. *Nicaensis.* Italy. *Ann.*
40. *Rotundifolia.* Engl. and other pts. of Eur. *Per.*
41. *Acaulis.* Peru in the Cordilleras. *Peren.*
42. *Sherardiana.* Bithynia. *Peren.*
43. *Sylvestris.* Engl. and other pts. of Eur. *Bien.*
44. *Mauritania.* Italy, Portugal, Spain. *Ann.*
45. *Hispanica.* Spain. *Ann.*
46. *Verticillata.* China. *Ann.*
47. *Crispa.* Syria, Germany. *Ann.*
48. *Papaver.* Portugal. *Ann.*
49. *Stipulacea.* Spain. *Ann.*
50. *Alcea.* Engl. Germany, France. *Peren.*
51. *Moschata.* Engl. Germany, France. *Peren.*
52. *Elegans.* Cape of Good Hope. *Shrub.*
53. *Tournefortiana.* France and Spain. *Ann.*
54. *Egyptia.* Egypt. *Ann.*
55. *Trifida.* Spain. *Ann.* * 56? *Scabra.* Peru.
* 57. *Leprosa.* Isle of Cuba. (Orteg. *Dec.* 95.)
* 58. *Tenella.* Chili. (Cav. *Ic.* v. 14.)
* 59. *Divaricata.* Cape of G. H. } *Andrews*, t.
* 60. *Reflexa.* Cape of G. H. } 182 and 135.
* 61. *Microcarpa.* Egypt. *Ann.* (*Persoon.*)
* 62. *Cymbalarifolia.* (Desrouss. *Enc. Bot.* iii. 753.)

1293. MALOPE. *Cal.* dup. ext. 3-phyll. *Caps.* absque ordine glomeratæ 1-spermæ.
1. *Malacoides.* Tuscany and Barbary. *Ann.*
2. *Multiflora.* Andalusia. *Ann.*
3. *Trifida.* Andalusia and Barbary. *Ann.*

1295. URENA. *Cal.* dup. ext. 3-fid. *Caps.* 5-loc. 5-partib. loculis clausis 1-spermis.
1. *Lobata.* China. *Shrub.*
2. *Reticulata.* Equinoctial America. *Shrub.*
3. *Tricuspis.* Mauritius and Bourbon. *Shrub.*
4. *Americana.* Surinam. *Shrub.*
5. *Sinuata.* India. *Shrub.*
6. *Multifida.* Mauritius. *Shrub.*
7. *Procumbens.* Hills of China. *Shrub.*
8. *Viminea.* Brasil. *Shrub.*

1296. PAVONIA. *Cal.* dup. ext. polyphyll. *Stig.* 10. *Caps.* 5, 2-valv. 1-spermæ.
1. *Præmorsa*, or *Cuneifolia.* Cape of G. H. *Shr.*
2. *Leptocarpa.* Surinam.
3. *Typhalæa.* Jamaica and Guiana. *Shrub.*
4. *Hastata.* Brasil. *Shrub.*
5. *Spinifex.* South America. *Shrub.*
6. *Papilionacea.* Island of Otaheite. *Shrub.*
7. *Cancellata.* Surinam.
8. *Racemosa.* Jamaica. *Shrub.*
9. *Corymbosa.* Jamaica. *Shrub.*
10. *Paniculata.* Peru. *Shrub.*
11. *Odorata.* East Indies.
12. *Coccinea.* Dominica. *Shrub.*
13. *Columella.* Bourbon. *Shrub.*
14. *Urens.* Mauritius. *Shrub.*
15. *Zeylanica.* Ceylon. *Ann.*
* 16. *Spiralis.* Taboga. S. Amer. *Shr.* } Cav. *Ic.*
* 17? *Aristata.* South America. } v. 20.

1297. HIBISCUS. *Cal.* dup. ext. polyphyll. *Stig.* 5. *Caps.* 5-loc. polysperma.
1. *Moscheutos.* Canada and Virginia. *Peren.*
2. *Incanus.* Carolina. *Per.* 3. *Lasiocarpus.* *Shr.*
4. *Palustris.* Virginia, Canada. *Peren.*
5. *Militaris.* Lousiana. *Peren.*
6. *Hastatus.* India.
7. *Ferrugineus.* Madagascar.
8. *Cordifolius.* South America. *Shrub.*
9. *Populneus.* E. Indies, and Soc. Islands. *Shr.*
10. *Tiliaceus.* India at rivers. *Shrub.*
11. *Elatus.* Jamaica. *Shrub.*
12. *Lampas.* Philippine Isles. *Shrub.*
13. *Membranaceus.* *Shrub.*
14. *Lunarifolius.* East Indies.
15. *Rosa sinensis.* India. *Shrub.*
16. *Spiralis.* Mexico. *Shrub.*
17. *Brasiliensis.* Brasil. *Shrub.*
18. *Unilateralis.* Woods in Dominica. *Shrub.*
19. *Acuminatus.* *Shr.* 20. *Phœniceus.* E. Indies. *Sh.*
21. *Ovalifolius.* Arabia Felix. *Shrub.*
22. *Clandestinus.* Senegal. *Shrub.*
23. *Rigidus.* Ceylon. *Shrub.*
24. *Micranthus.* East Indies. *Ann.*
25. *Gossypinus.* Cape. 26. *Ovatus.* Cape. *Per.*
27. *Æthiopicus.* Cape. *Shrub.*
28. *Microphyllus.* Arabia Felix. *Shrub.*
29. *Urens.* Cape. 30. *Calycinus.* Bourbon. *Shr.*
31. *Mutabilis.* India. *Shrub.*
32. *Syriacus.* Syria and Carniola. *Shrub.*
33. *Rhombifolius.* East Indies. *Shrub.*
34. *Liliiflorus.* Bourbon. *Shrub.*
35. *Bifurcatus.* Brasil. *Shrub.*
36 *Tribolus.* Bogs in Dominica. *Shrub.*
37. *Diversifolius.* East Indies. *Shrub.*
38. *Domingensis.* Domingo. *Shrub.*
39. *Ficulneus.* Ceylon. *Shrub.*
40. *Sabdariffa.* India. *Ann.*
41. *Speciosus.* South Carolina. *Peren.*
42. *Cannabinus.* India. *Ann.*
43. *Fraternus.* Surinam. 44. *Sororius.* Surinam.
45. *Surattensis.* East Indies. *Ann.*
46. *Radiatus.* *Ann.* 47. *Manihot.* India. *Shr.*
48. *Digitatus.* Brasil. *Peren.*
49. *Flavescens.* Pondicherry.
50. *Spicatus.* *Shr.* 51. *Mioana.* Java. *Shr.*

51. *Abelmoschus.* East and West Indies. *Shrub.*
52. *Columnaris.* Bourbon. *Shrub.*
53. *Pedunculatus.* Cape of Good Hope. *Shr.*
54. *Esculentus.* East and West Indies. *Ann.*
55. *Longifolius.* East Indies. *Ann.*
56. *Clypeatus.* Coasts of Jamaica. *Shrub.*
57. *Senegalensis.* Senegal.
58. *Tubulosus.* East Indies. *Ann.*
59. *Obtusifolius.* East Indies.
60. *Vitifolius.* India. *Ann.*
61. *Tricuspis.* Society Islands. *Shrub.*
62. *Virginicus.* Salt parts of Virginia. *Peren.*
63. *Pentacarpos.* Venice and Astracan. *Peren.*
64. *Vesicarius.* Africa. *Ann.*
65. *Trionum.* Italy, Africa, Carniola. *Ann.*
* 66. *Heterophyllus.* N. Holl. (Vent. *Malmais.*)
* 67. *Riparius.* Carolina. } Mich. *Flor.*
* 68. *Scaber.* Carolina and Florida. } *Amer.* ii.
* 69. *Grandiflorus.* Georgia, Florida. } p. 45.

1299. ACHANIA. *Cal.* dup, ext. polyphyll. *Cor.* convoluto-clausa. *Stig.* 10. *Bac.* 5-loc. 5-sperma.
1. *Malvaviscus.* Jamaica. Mexico. *Shrub.*
2. *Mollis.* America. *Shrub.*

3. *Pilosa.* South of Jamaica. *Shrub.*

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1294. KITAIBELIA. *Cal.* dup. ext. 7 seu 9-fid. *Caps.* in capitulum 5-lobum glomeratæ 1-spermæ.
1. *Vitifolia.* Denmark. *Shrub.*

‡ 1289. ALTHÆA. *Cal.* dup. ext. 6 seu 9-fid. *Caps.* plurimæ 1-spermæ.
1. *Officinalis.* Engl. Holl. France, Siber. *Per.*
2. *Narbonensis.* France and Spain. *Peren.*
3. *Cannabina.* Hungary, Italy. *Peren.*
4. *Hirsuta.* France, Italy, Spain, Austria, in hedges. *Ann.*
5. *Ludwigii.* Sicily. *Ann.*
6. *Acaulis.* In the East? *Ann.*
7. *Rosea.* In the East and China. *Bien. Ann.*
8. *Pallida.* Hungary. *Bien.*
9. *Ficifolia.* Siberia. *Bien.*
* 10. *Sinensis.* China. (*Cavan.*)

1302. CAMELLIA. *Cal.* imbricatus, polyphyll. foliolis interioribus majoribus.
1. *Japonica.* Japan and China. *Shrub.*
2. *Sasanqua.* Japan. *Shrub.*
* 3? *Drupifera.* Cochinchina. (*Loureiro.*)

NEW GENERA.

TRIANDRIA.

I. JOHNSONIA. *Perianth.* 6-part. æquale, petaloideum, marcescens, deciduum. *Stam.* 3. *Fil.* basi laciniarum interiorum inserta, infra dilatata connata. *Ovarium* loculis. 2-spermis. *Styl.* filiformis. *Stig.* obtusum. *Caps.* 3-loc. 3-valvis, valvis medio septiferis. *Sem.* bina altero pendulo apici columnæ centralis gracilis capsula brevioris affixa: umbilico strophiolato. (R. Brown, *Prodr.* p. 287.)
1. *Lupulina.* New Holland. *Peren.*

II. PATERSONIA. *Perianth.* petaloideum, hypocrateriforme, regulare; tubo gracili; limbo sexpartito, laciniis interioribus minutis. *Filamenta* connata. *Stylus* capillaris apice sæpissime tumido. *Stig.* 3, laminæformia, indivisa. *Caps.* prismatica. *Sem.* numerosa. (R. Brown, *Prodr.* p. 304.)
1. *Sericea.*
2. *Lanata.*
3. *Longifolia.*
4. *Media.*
5. *Glabrata.*
6. *Glauca.*
7. *Occidentalis.*

All *Peren.* and from New Holl. and V. Diem. Isl.

PENTANDRIA.

III. SOLANANDRA. *Cal.* 5-part. persistens. *Cor.* duplo longior, 5-pet.: petal. imo staminum affixis. *Urceol.* 10 fid.; lacin. 5 alternis brevioribus antheriferis. *Stig.* 3-lobum. *Caps.* cal. cincta, 3-loc. 3-valvis: valvul. media septiferis. *Sem.* plurima, axi centrali affixa.
1. *Cordifolia.* North America.

IV. MEDUSULA. *Cal.* 5-phyll. *Pet.* 5. *Filam.* in tubum coalita. *Anth.* incumbentes. *Caps.* (villis longis flexuosis tecta) 1-loc. 3-valvis, 6-sperma.
1. *Anguifera.* Cochinchina. (*Loureiro.*)

V. MURUCUIA. *Cal.* (*Cor.* Lin.) passifloræ coloratus, urceolo subtus sulcato. *Corona* interior simplex, tubulosa, truncata. *Fruct.* Passifloræ.
This genus contains Sp. 18, 23, and 37, of PASSIFLORA, p. 265.

VI. TACSONIA. *Cal.* (*Cor.* Lin.) longissimus tubulosus: limbo 10-fido (passim 5-fido, laciniis coloratis, alternis extimis sub apice mucronatis; alternis interioribus obtusis. *Corona* nulla manifesta, cujusloco *Glandulæ* plurimæ in tubi faucis sessiles et rugæ 2 intimæ circulares sub serie glandulosa. *Stipes* germinis longissimus. *Fruct.* Pepo. (*Jus.*)

New Genera.

1. *Trinervia.*
2. *Lanata.*
3. *Reflexiflora.*
4. *Tripartita.*
5. *Trifoliata.*
6. *Longiflora.*
7. *Tacso.*
8. *Peduncularis.*
9. *Glaberrima.*

Sp. 1—4 from S. Amer. and Sp. 5—8 from Peru. See Juss. *Ann. Mus.* ii. 390. This genus contains also Sp. 3, 40, 41, of PASSIFLORA, p. 265.

VII. MATISIA. *Cor.* cal. duplo longior, sub-2-lab. polypet. pet. 5 ovata, imo calyci imposita, crassiuscula, basi angustiora: ex eorum duo alteris paulo minora. *Fil.* 5, labio sup. adnata, inferne in tubum cylindricum incrassatum, corollaque longiorem, connata, apice patula; *Anth.* circiter 12 ovato reniformes, exteriori parte filamentorum impositæ, subgeminatæ, 12-loc. *Ovar.* 5-ang. *Styl.* 1 stam. brevior; *Stig.* peltato-capitatum, 5-sulcatum. *Drupa* ovata, apice mammillari, basi calice persistente cincta, 5-loc. 1-sperma. *Sem.* hinc angulata, inde convexa. *Integumentum* triplex; externum, epidermis tenuissima, fusca; medium membranaceum fragile; intimum membrana diaphana, a cotyledonibus difficile separabilis. *Albumen* album, farinaceum. *Cotyledones* parte tantum interiori corrugati. (Humb. *Plant. Æquinoct.* p. 10.)
1. *Cordata.* New Granada and Peru.

VIII. CHEIROSTEMON. *Cor.* 0; nisi calycem dicas. *Stam.* 5, filamentis basi in tubum longum coalitis, apice distinctis, digitatim expansis, fulcatim inflexis et dorso antheriferis: *Anth.* longæ fil. adnatæ, iisque immersæ. *Ovar.* 5-ang. *Styl.* 1 tubo staminum paulo longior; *Stig.* acutum. *Caps.* lignosa, 5-ang. 5-loc. polysperma, ad angulos elevatos semi 5-valvis; valvæ intus medio septiferæ, septo incrassato, villoso, ad marginem utrinque seminifero. *Sem.* numerosa, nitida, atra, hinc apice carunculata basi versus hilum receptaculo adnata, ope funiculi. *Integ.* dupl.; ext. crustaceum, atrum: int. tenue,

ferrugineum. *Perisper.* semini conforme, album. *Embryo* dycotyledoneus, perispermo paulo minor: cotyledones ovatæ. foliaceæ radicula brevis ovata. (Humboldt, *Pl. Æquinoct.* p. 81.)
1. *Platanoides.* New Spain.

Heptandria.

IX. Buguinvillea. *Cal.* 0. *Cor.* tubulosa; limbo plicato, dentato, dentibus 5 integris, longioribus, 5 alteris flavis, bifidis, latioribus. *Stam.* disco insidentia. *Fil.* 7. rariss. 8, cor. breviora, inæqualia: antheræ incumbentes, ovatæ. *Ovar.* pedicellatum, superum, disco basi cinctum. *Styl.* lateralis, *Stig.* obtusum, pilosum. *Sem.* lineari-oblongum, corolla ampliata et persistente obvolutum. (Humboldt, *Pl. Æq.* 173.)
1. *Peruviana.* Warm parts of Peru, at the rivers Amazon and Guancabamba.

Polyandria.

X. Napæ. *Cal.* campanulatus, 5-fid. simplex. *Pet.* 5. *Caps.* orbicularis, depressa, 10-loc. *Sem.* solitaria. (Pedicell. non articulatus.)
This genus contains Sp. 97 and 98 of Sida, p. 268.
XI. Cristaria. *Cal.* simpl. 5-fid. *Pet.* 5, unguiculata. *Styli* plures. *Fruct.* orbiculato, depressus, pellicula tectus, dehiscens in *Arillos* bialatos.
1. *Betonicæfolia.* South America.

2. *Glaucophylla.* [illegible]
3. *Multifida.* [illegible]
XII. Bedutea. *Cal.* [illegible]
interior 5-part. [illegible]
Stig. tria. *Caps.* [illegible]
3, utroque latere [illegible]
1. *Heterophylla.* [illegible]
XIII. Malachoden[illegible] *Cal.* [illegible]
atus. *Pet.* 5-6-[illegible]
spermæ.
1. *Ovatum.* [illegible]
XIV. Cordylia. *Cal.* [illegible]
rus. *Cor.* 0. *Styl.* 1. [illegible]
pedicellata.
1. *Africana.* [illegible]
XV. Bertholletia. [illegible]
drupacea, evalvis, [illegible]
tice crasso, externe [illegible]
conforme, evalve, [illegible]
4-loc. polysperm[illegible]
Nuces particulares, [illegible]
monospermæ colum[illegible]
osseæ, subrenifor[illegible]
nuci conforme. *Integ.* [illegible]
fusco-spadiceum: [illegible]
membranaceum. [illegible]
nosa, rhizoboli [illegible]
mur. *Plumula* haud [illegible]
1. *Excelsa.* Brasil, [illegible]

REMARKS ON THE CLASS MONADELPHIA.

Persoon has given the genera Sisyrinchium, Tigridia, and Ferraria, under Triandria: and has transferred to the present class the genera Strumpfia and Lobelia, which, after Willdenow, we have given under Pentandria; and the genera Sterculia and Kleinhofia, which we have given under Dodecandria.

The following plants might be [illegible] to occur in this class; but they belong to [illegible] genera, the species of which ought not to be separated, and which fall under other classes.

Pentandria.

Heliconia *bihai.* Ayenia. B[illegible]. Triguera. Some species of Lysimachia. [illegible]. Linum. Anagallis. Mahernia. Leea.

Octandria.

Erica *monadelpha.* Guarea. Trichilia. Melia. Some species of Samyda. Cordiospermum.

Decandria.

Some species of [illegible]. [illegible] *Indicum.* Turræa. [illegible] Trichilia. Strigilia. [illegible] pighia. Banisteria. [illegible] ris. Also several leg[illegible] nera and species, in which [illegible] at least) united with the [illegible]

Dodecandria.

Styrax. Halesia. [illegible]

Polyandria.

Hypericum *Brachy*[illegible] nella.

CLASS XVII. DIADELPHIA.

Pentandria.

1310. Monnieria. *Cal.* 5-part. lacinia superiore longa. *Cor.* ringens. *Stam.* 2: superiore antheris 2, inferiore 3. *Caps.* 5, 1-spermæ.
1. *Trifolia.* Cumana, Guiana, Cayenne. *Ann.*

1312. Fumaria. *Cal.* [illegible]
membranacea. [illegible]
1. *Cucullaria.* [illegible]
2. *Fungosa.* [illegible]

1. *Arborea.* Carthagena and Martinique. *Shr.*
2. *Ferruginea.* Banks of rivers in Guiana. *Shr.*
3. *Fruticosa.* Woods of Carthagena. *Shrub.*

1320. Dipterix, or Baryosma of Persoon. *Cal.* laciniæ 2 alæformes. *Legum.* 1-loc. 1-spermum coriaceum bivalve.

1. *Odorata.* Woods of Guiana. *Shrub.*
2. *Oppositifolia.* Woods of Cayenne. *Shrub.*

1318. Pterocarpus. *Cal.* 5-dent. *Legum.* falcatum foliaceum varicosum ala cinctum, non dehiscens. *Sem.* aliquot solitaria.

1. *Draco.* South America. *Shrub.*
2. *Indicus.* East Indies. *Shrub.*
3. *Marsupium.* Mountains of Coromandel. *Shr.*
4. *Rohrii*, or *Apalatoa.* Woods of Guiana. *Shr.*
5. *Lunatus.* South America. *Shrub.*
6. *Santalinus.* Ceylon and India. *Shrub.*
7. *Ecastaphyllum.* South America. *Shrub.*
* 8. *Suberosa.* Guiana. (*Aublet.*)
* 9. *Erinacea.* Senegal.
* 10. *Echinata.* India. } *Herb.* of Jussieu.
* 11. *Microcarpus.* India?

See the new genus Ecastaphyllum.

1319. Amerimnum. *Cal.* subbilabiatus. *Legum.* compresso-foliaceum bivalve dehiscens. *Sem.* aliquot solitaria.

1. *Brownei.* Jamaic. Hispan. Carthagena. *Shr.*
2. *Ebenus.* Warm parts of America. *Shrub.*
3. *Latifolium.* Woods of Carthagena. *Shrub.*
4. *Pubescens.* Banks of torrents in Caraccas. *Shr.*
5. *Scandens.* Caraccas. *Shrub.*

1339. Amorpha. *Cal.* campan. 5-fid. *Cor.* vexillum ovatum, concavum. *Alæ* 0. *Carina* 0. *Legum.* 2-sperm. falcatum.

1. *Fruticosa.* Carolina. *Shrub.*
2. *Pubescens.* Carolina. *Shrub.*
* 3? *Glabra.* North America. (Desfont. *Cat.*)

1322. Erythrina. *Cal.* bilabiatus : $\frac{1}{1}$. *Cor.* vexillum longissimum lanceolatum. *Legum.* torulosum.

1. *Herbacea.* Carolina, and at Mississippi. *Per.*
2. *Carnea.* Vera Cruz. *Shrub.*
3. *Corallodendrum.* Antilles. *Shrub.*
4. *Indica.* East Indies. *Shrub.*
5. *Fusca.* India and Cochinchina. *Shrub.*
6. *Caffra.* Cape of Good Hope. *Shrub.*
7. *Picta.* India. *Shrub.*
8. *Velutina.* Terra Firma. *Shrub.*
9. *Glauca.* *Shrub.* 11. *Isopetala.* *Shrub.*
10. *Mitis.* *Shrub.* 12. *Crista galli.* *Shrub.*

Sp. 9, 10 from Caraccas, and Sp. 11, 12 from Brazil.

1324. Rudolphia. *Cal.* bilabiatus. *Corollæ* vexillum longissimum lanceolatum. *Legum.* planum polyspermum.

1. *Volubilis.* Mts. in Porto Rico. *Shrub.*
2. *Peltata.* St Domingo. *Shrub.*

Given as a subgenus under Butea by Persoon.

1323. Butea. *Cal.* subbilabiatus. *Cor.* vexillum longissimum lanceolatum. *Legum.* compressum membranaceum apice monospermum.

1. *Frondosa.* Mountains of Coromandel. *Shr.*
2. *Superba.* Mountains of Coromandel. *Shrub.*

1321. Abrus. *Cal.* obsolete 4-lobus: superiore latiore. *Fil.* 9, basi infima connata, dorso hiantia. *Stig.* obtusum. *Sem.* sphærica.

1. *Precatorius.* Clayey parts of India. *Shrub.*

1334. Lebeckia. *Cal.* 5-part. laciniis acutis, sinubus rotundatis. *Legum.* cylindricum polyspermum.

1. *Contaminata.* *Shr.* 3. *Pungens.* *Shrub.*
2. *Sepiaria.* *Shrub.* 4. *Armata.* *Shrub.*
5. *Densa.* *Shrub.* 7. *Sericea.* *Shrub.*
6. *Humilis.* *Shrub.* 8. *Cytisoides.* *Shrub.*

‡ 1332. Spartium. *Stig.* longitudinale, supra villosum. *Fil.* germini adhærentia. *Cal.* deorsum productus.

1. *Junceum.* France, Italy, Sicily, Turkey, and Carniola. *Shrub.*
2. *Aphyllum.* Deserts at the Wolga. *Shrub.*
3. *Monospermum.* Barren parts of Spain. *Shr.*
4. *Sphærocarpon.* South of Europe. *Shrub.*
5. *Cinereum.* Dauphiny and Nice. *Shrub.*
6. *Virgatum.* Madeira. *Shrub.*
7. *Ramosissimum.* Near Tlemsen. *Shrub.*
8. *Purgans.* Montpellier. *Shrub.*
9. *Umbellatum.* Barbary. *Shrub.*
10. *Scorpius.* Spain and South of France. *Shr.*
11. *Aspalathoides.* Barbary. *Shrub.*
12. *Multiflorum.* Portugal and Barbary. *Shrub.*
13. *Angulatum.* In the East. *Shrub.*
14. *Persicum.* Persia. *Shrub.*
15. *Patens.* Portugal and Spain. *Shrub.*
16. *Nubigenum.* Peak of Teneriffe. *Shrub.*
17. *Biflorum.* Near Tlemsen. *Shrub.*
18. *Linifolium.* France, Spain, Barbary, and the East. *Shrub.*
19. *Scoparium.* Engl. and S. of Europe. *Shr.*
20. *Arboreum.* Algiers and Mt. Atlas. *Shrub.*
21. *Radiatum.* Italy and Carniola. *Shrub.*
22. *Ferox.* Barbary. *Shrub.*
23. *Spinosum.* Italy, Spain, and Barbary. *Shr.*
24. *Villosum.* Barbary and Candia. *Shrub.*
25. *Horridum.* Arragon. *Shrub.*
* 26. *Parviflorum.* In the East. (Vent. *H. Cels.*)

‡ 1333. Genista. *Cal.* bilabiatus : $\frac{2}{3}$ dentibus binis superioribus brevissimus. *Vexill.* oblongum a pistillo staminibusque deorsum reflexum.

1. *Canariensis.* Spain and Canary Isles. *Shrub.*
2. *Candicans.* Italy and Montpellier. *Shrub.*
3. *Viscosa.* Canary Isles? *Shrub.*
4. *Triquetra.* Corsica. *Shrub.*
5. *Sagittalis.* Germany and France. *Shrub.*
6. *Tridentata.* Portugal. *Shrub.*
7. *Triangularis.* Bannat. *Shrub.*
8. *Tinctoria.* England and Germany. *Shrub.*
9. *Ovata.* Sclavonia and the Bannat. *Shrub.*
10. *Sibirica.* Siberia. *Shrub.*
11. *Florida.* Spain. *Shrub.*
12. *Procumbens.* Hungary and Moravia. *Shrub.*
13. *Decumbens.* France and Switzerland. *Shrub.*
14. *Pilosa.* England, South of France, Germany, and Hungary. *Shrub.*
15. *Humifusa.* In the East. *Shrub.*
16. *Albida.* Tauria. *Shrub.*
17. *Diffusa.* Tergesti and Styria. *Shrub.*
18. *Sericea.* Coast of Austria. *Shrub.*
19. *Anglica.* England and Germany. *Shrub.*
20. *Germanica.* Germany and France. *Shrub.*
21. *Sylvestris.* Croatia and Carniola. *Shrub.*
22. *Hispanica.* Spain and S. of France. *Shrub*
23. *Hirsuta.* Spain and Portugal. *Shrub.*
24. *Tricuspidata.* Hills of Algiers. *Shrub.*
25. *Lusitanica.* Spain and Portugal. *Shrub.*
* 26. *Genuensis.* Italy. (Viviani, *Fl. Ital.*)
* 27. *Micrantha.* New Spain. (*Ortega.*)
* 28. *Parviflora.* Portugal. (*Brotero.*)
* 29. *Algarbiensis.* Algarvia. *Shrub.*
* 30. *Triacanthos.* Beira in Portugal. *Shrub.* } Brotero, *Lusit.* 2. p. 87.
* 31. *Falcata.* Near Coimbra.

6. *Hispida.* Fields of Barbary.
7. *Serrata.* Arabia.
8. *Minutissima.* Italy and Montpellier. *Ann.*
9. *Columnæ,* or *Parviflora.* Austria, Hungary, Switzerland, France, and Spain. *Peren.*
10. *Capitata.* Mountains of Valentia. *Peren.*
11. *Mitissima.* Barbadoes and Portugal. *Ann.*
12. *Villosissima.* Fields of Algiers.
13. *Alopecuroides.* Sicily, Spain, Portugal, and Barbary. *Ann.*
14. *Monophylla.* Fields of Barbary.
15. *Spicata.* Cape of Good Hope. *Shrub.*
16. *Euphrasiæfolia.* Barbary near Mascar. *Shr.*
17. *Variegata.* Coasts of Spain and Barbary. *An.*
18. *Alba.* Coasts of Barbary.
19. *Fasciculata.* Cape of Good Hope.
20. *Pubescens.* South of Europe. *Ann.*
21. *Persica.* Persia.
22. *Cernua.* 30. *Capensis.* *Ann.*
23. *Mierantha.* 31. *Excisa.*
24. *Parviflora.* 32. *Prostrata.* *Peren.*
25. *Umbellata.* *Shrub.* 33. *Geminata.* *Peren.*
26. *Involucrata.* 34. *Elongata.*
27. *Secunda.* 35. *Capillaris.*
28. *Glabra.* 36. *Villosa.*
29. *Filiformis.* *Peren.* 37. *Heterophylla.*
38. *Laxiflora.* Barren hills of Algiers. *Ann.*
39. *Pendula.* Barbary near Mascar. *Ann.*
40. *Reclinata.* France, Spain, and Italy. *Ann.*
41. *Cenisia.* Dauphiny and Italy. *Peren.*
42. *Vaginalis.* Egypt. *Shrub.*
43. *Cherleri.* France, Spain, Italy, Barbary. *An.*
44. *Viscosa.* Montpellier and Spain. *Ann.*
45. *Biflora.* Barbary.
46. *Ornithopodioides.* Sicily. *Ann.*
47. *Ramosissima.* Coasts of Barbary. *Peren.*
48. *Picta.* Barbary near Mascar.
49. *Pinguis.* South of Europe. *Shrub.*
50. *Cuspidata.* Fields of Algiers.
51. *Natrix.* France and Spain. *Peren.*
52. *Hispanica.* *Shrub.* 54. *Strigosa.* *Shrub.*
53. *Tridentata.* *Shrub.* 55. *Stipulata.* *Shrub.*
56. *Juncea.* Dry parts of Arragon. *Shrub.*
57. *Crispa.* Spain near Valentia. *Shrub.*
58. *Arborescens.* Mts. of Barb. near Arzeau. *Shr.*
59. *Fruticosa.* Mountains of Dauphiny. *Shrub.*
60. *Arragonensis.* Arragon. *Shrub.*
61. *Rotundifolia.* Mountains of Switzerland and Carinthia. *Shrub.*
62. *Michrophylla.* 65. *Sericea.* 68. *Quinata.*
63. *Hirsuta.* 66. *Racemosa.* * 69. *Elongata.*
64. *Decumbens.* 67. *Lagopus.*
* 70. *Arvensis.* England. (*Smith.*)
* 71. *Pinnata.* Portugal. *Ann.* (*Brotero.*)

Sp. 22—37, 54, 55, 62—69, from the Cape.

1342. Bossiæa. *Cal.* 2-lab, lab. sup. obcordato. *Vexill.* basi biglandulosum. *Carina.* 2-pet. *Legum.* pediculatum compressum polyspermum.

1. *Heterophylla.* New Holland. *Shrub.*

1343. Crotalaria. *Legum.* turgidum, inflatum, pedicellatum. *Fil.* connata cum fissura dorsali.

1. *Sagittalis.* Jamaica and Martinique. *Ann.*
2. *Parviflora.* Virginia and Carolina. *Ann.*
3. *Rubiginosa.* East Indies. *Ann.*
4. *Chinensis.* China. *Shrub.*
5. *Glauca.* Guinea.
6. *Juncea.* *Ann.* 9. *Imbricata.* *Shrub.*
7. *Sericea.* *Ann.* 10. *Parvifolia.* *Shrub.*
8. *Linifolia.* 11. *Lanata.* *Shrub.*
12. *Reflexa.* *Shrub.* 13. *Retusa.*
14. *Sessiliflora.* China. *Ann.*
15. *Verrucosa.* Malabar, Ceylon, Java, Philippines. *Ann.*
16. *Semperflorens.* East Indies. *Shru*
17. *Hirsuta.* E. Indies near Hydrabad.
18. *Biflora.* Island of St Johanna.
19. *Nummularia.* 20. *Bifaria.*
21. *Paniculata.* Malabar and Java. *S*
22. *Lotifolia.* Jam. and Isl. of St Cru
23. *Pubera.* Island of St Martha. *Sh*
24. *Argentea.* Cape of Good Hope.
25. *Lunaris.* Africa.
26. *Laburnifolia.* Asia. *Ann.*
27. *Macrophylla.* East Indies. *Shru*
28. *Lævigata.* Madagascar. *Shrub.*
29. *Trifoliastrum.* 31. *Pilosa.* *Sh*
30. *Cordifolia.* *Shrub.* 32. *Villosa.* *Sh*
33. *Axillaris.* Guinea. *Ann.*
34. *Incanescens,* or *Arborescens.* Cape Hope, Mauritius, and Bourbon. *Sh*
35. *Incana.* Jamaica and the Caribbee
36. *Pallida.* Africa. *Ann.*
37. *Longifolia.* Meadows of Guiana.
38. *Angustifolia.* *Shrub.* 39. *Lineata.*
40. *Genistoides.* Dry parts of East Ind
41. *Microphylla.* Arabia Felix.
42. *Volubilis.* * 47. *Lineata.*
43. *Heterophylla.* *Ann.* * 48. *Medicagi*
44. *Quinquefolia.* *Ann.* * 59. *Glycinea.*
* 45? *Capitata.* * 50. *Benghale*
* 46. *Purpurea.*
* 51. *Cuneiformis.* Africa. }
* 52. *Coluteoides.* Africa. } Lam. *Ency*
* 53. *Anthylloides.* China. }
* 54. *Purpurascens.* Madagas. and Maurit.
* 55. *Psoraloides.* Madagascar. }
* 56. *Uncinella.* Bourbon and Senegal. }
* 57. *Heptaphylla.* Cochinchina. (*Lou*

Sp. 6—8, 13, 19, 20, 29, 43, 44. 49, 50, East Indies. Sp. 9—12, 30—32, 38, 48, from the Cape.

1327. Platylobium. *Cal.* campan. 5-fid 2 supremis maximis obtusis. *Legum.* pedi compressum dorso alatum polyspermum.

1. *Formosum.* *Shrub.* * 4. *Ovatum.*
2. *Parviflorum.* *Shr.* * 5. *Scolopend*
* 3. *Lanceolatum.*

From New Holland. See Andrews' *Re*

Sect. II. *Stigma downy.*

1365. Colutea. *Cal.* 5-fid. *Legum.* infla superiore dehiscens.

1. *Arborescens.* France, Mt. Vesuviu
2. *Cruenta.* Germ. Tauria, and the E
3. *Pocockii.* In the East. *Shrub.*
4. *Frutescens.* *Shrub.* 9. *Perennan*
5. *Rigida.* *Shrub.* 10. *Prostrata*
6. *Obtusata.* *Shrub.* 11. *Excisa.*
7. *Linearis.* 12. *Vesicaria*
8. *Herbacea.* *An. Bien.* 13. *Tomento*

Sp. 4—13 from the Cape.

1348. Phaseolus. *Carina* cum staminibus spiraliter tortis.

1. *Vulgaris.* East Indies. *Ann.*
2. *Multiflorus,* or *Coccineus.* America
3. *Perennis.* Carolina. *Shrub.*
4. *Lunatus.* Bengal. *Ann.* 5. *Pallar.*

Class XVII. Diadelphia.

6. *Hispida.* Fields of Barbary.
7. *Serrata.* Arabia.
8. *Minutissima.* Italy and Montpellier. *Ann.*
9. *Columnæ*, or *Parviflora.* Austria, Hungary, Switzerland, France, and Spain. *Peren.*
10. *Capitata.* Mountains of Valentia. *Peren.*
11. *Mitissima.* Barbadoes and Portugal. *Ann.*
12. *Villosissima.* Fields of Algiers.
13. *Alopecuroides.* Sicily, Spain, Portu
Barbary. *Ann.*
14. *Monophylla.* Fields of Bar
15. *Spicata.* Cape of Good H
16. *Euphrasiæfolia.* Barbary
17. *Variegata.* Coasts of Spai
18. *Alba.* Coasts of Barbary
19. *Fasciculata.* Cape of G
20. *Pubescens.* South of F
21. *Persica.* Persia.
22. *Cernua.* 30
23. *Micrantha.* 31
24. *Parviflora.* 3
25. *Umbellata.* *Shrub.*
26. *Involucrata.*
27. *Secunda.*
28. *Glabra.*
29. *Filiformis.* *Peren.*
38. *Laxiflora.* Barren
39. *Pendula.* Barbary
40. *Reclinata.* Franc
41. *Cenisia.* Dauphi
42. *Vaginalis.* Egy
43. *Cherleri.* France.
44. *Viscosa.* Mont
45. *Biflora.* Barb
46. *Ornithopodioid* *Ann.*
47. *Ramosissima.* Spain,
48. *Picta.* Barb
49. *Pinguis.* S Aust. *Ann.*
50. *Cuspidata.* Hung. *Ann.*
51. *Natrix.* F Engl. *Per.*
52. *Hispanica* gary. *Ann.*
53. *Tridentat* n.
56. *Juncea.* *Ann.*
57. *Crispa.* other pts. of Eur. *Per.*
58. *Arbor* . Italy, and Barbary. *Ann.*
59. *Fruti* n.
60. France, England, Siberia. *Ann.*
61. near the Caspian. *Ann.*
Wet parts of Hungary. *Ann.*
62. Carolina, Virginia. (*Mich.* ii. 69.)
63. Pyrenees. (Decand. *Syn.* 360.)
64. Near Nice. (Balbis. *Miscell.*)

SECT. III. *Legumen nearly 2-celled.*

ASTRAGALUS. *Legum.* plerumque 2-loc. gibbum. *Sem.* beserialia.

1. *Christianus.* Armenia. *Peren.*
2. *Sieversianus.* Siberia. *Peren.*
3. *Tomentosus.* Egypt. *Peren.*
4. *Alopecuroides.* Siberia and Spain. *Peren.*
5. *Maximus.* Armenia. *Peren.*
6. *Alopecias.* Siberia at the lake Alagul. *Per.*
7. *Narbonensis.* Spain and S. of France. *Per.*
8. *Ponticus.* Tauria and Armenia. *Peren.*
9. *Vulpinus.* Sandy hills of Siberia. *Peren.*
10. *Macrocephalus.* Galatia. *Peren.*
11. *Capitatus.* In the East.
12. *Dasyanthus.* Siberia, Caucasus, Hung. *Per.*

12. *Reflexa.* *Shrub.* 13. *Ret*
14. *Sessiliflora.* China. *Ann.*
15. *Verrucosa.* Malabar, Ceylon,
Philippines. *Ann.*
16. *Semperflorens.* East Ind
17. *Hirsuta.* E. Indies ne
18. *Biflora.* Island of S
19.

ng. *Shr.*
Shrub.
aucasus. *Shr.*
natus. *Peren.*
nuifolius. *Per.*

t?
an and in Hung. *Per.*
enia and Caucasus. *Per.*
Peren.
ria, Armenia, Algiers. *Per.*
iberia. *Peren.*
Carolina. *Peren.*
unus. Siberia. *Peren.*
sis. Virginia and Canada. *Peren.*
tus. In the East. *Peren.*
r. Austria, Switzerland, Italy, Germany, and Russia. *Peren.*
Glycyphyllos. Engl. and other pts. of Eur. *Per.*
Lanatus. Tauria. *Peren.*
45. *Tunetanus.* Mts. of Sliba and Tunis. *Per.*
46. *Microphyllus.* Germany and Thuringia. *Per.*
47. *Parviflorus.* About Baikal. *Ann.* *Bien.*
48. *Trimestris.* Egypt. *Ann.*
49. *Hamosus.* Messina, Montpel. Barbary. *Ann.*
50. *Annularis.* Egypt. 51. *Scorpioides.* Spain. *An.*
52. *Contortuplicatus.* Siberia, Hungary. *Ann.*
53. *Bæticus.* Sicily, Spain, Portugal, Tauria. *An.*
54. *Stella.* France, Spain, and N. of Africa. *Ann.*
55. *Sesameus.* Italy, South of France. *Ann.*
56. *Geniculatus.* Barbary near Mascar. *Ann.*
57. *Pentaglotis.* Spain. *Ann.*
58. *Epiglottis.* Spain, Provence, the East. *Ann.*
59. *Hypoglottis.* Britain, Germany, France, Russia, Denmark, and Barbary. *Peren.*
60. *Syriacus.* *Peren.*
61. *Humifusus.* Cappadocia. *Peren.*
62. *Leontinus.* The Tyrol and in Switz. *Per.*
63. *Tauricus.* Tauria. *Peren.*
64. *Lunatus.* Persia. *Shrub.*
65. *Austriacus.* Austria, Moravia, Hungary, Russia, Tauria. *Shrub.*
66. *Subulatus.* Tauria and Siberia. *Shrub.*
67. *Arenarius.* Germany and Denmark. *Shrub.*
68. *Leucophæus.* *Shrub.*
69. *Depressus.* Pyrenees, Dauphiny, Savoy. *Shr.*
70. *Glaux.* Spain. *Ann.*
71. *Reduncus.* Russia near the R. Cuma. *Shrub.*
72. *Sinicus.* China. *Ann.*
73. *Lineatus.* The East. *Peren.*
74. *Albidus.* France, Italy, Hungary. *Shrub.*
75. *Nigrescens.* Russia. *Peren.*
76. *Ornithopodioides.* In the East. *Peren.*
77. *Fragrans.* Cappadocia. *Peren.*
78. *Declinatus.* Armenia. *Peren.*
79. *Barbatus.* Armenia. *Peren.*
80. *Onobrychis.* Switzerland, Germany, Austria, and Siberia. *Peren.*
81. *Adsurgens.* *Per* 82. *Laxmanni.* *Peren.*
83. *Alpinus.* Mts. of Lapland, Switz. Siberia. *Per.*

4. *Pumilio*. In the Curiles Islands. *Peren.*

Pygmæus. *Per.* 91. *Muricatus*. *Per.*

modytes. *Per.* 92. *Dagurious*. *Per.*

phyllus. *Per.* 93. *Oxyphyllus*. *Bien.*

laris. *Per.* 94. *Baicalia*. *Peren.*

s. *Per.* 95. *Linarius*. *Peren.*

Per.

is. Portugal. *Ann.*

s. Switz. Austria, the Vallais. *Per.*

s. Siberia and Tauria. *Peren.*

latus. At the Jenisey and Baikal. *Per.*

itosus. Dauria. *Peren.*

giflorus. Tartary. *Peren.*

iger. Uralian Mts. and Tauria. *Peren.*

aprinus. Barbary. *Peren.*

Songaricus. Sib. *Per.* 105. *Caudatus*. Sib. *Per.*

Follicularis. Siberia. *Peren.*

. *Densifolius*. In the East. *Peren.*

8. *Hirsutus*. In the East. *Peren.*

09. *Globosus*. Armenia. *Peren.*

110. *Libanotis*. Mount Libanus. *Peren.*

111. *Bicolor*. In the East. *Peren.*

112. *Psoralioides*. In the East. *Peren.*

113. *Laguroides*. Siberia. *Peren.*

114. *Lupulinus*. Siberia. *Peren.*

115. *Leucanthus*. Siberia. *Peren.*

116. *Argentatus*. Siberia. *Peren.*

117. *Candicans*. Siberia. *Peren.*

118. *Grandiflorus*. Siberia. *Peren.*

119. *Altaicus*. Sib. *Per.* 120. *Setosus*. Sib. *Per.*

121. *Ambiguus*. Siberia. *Peren.*

122. *Uralensis*. Siberia, Pyrenees, Switzerland, and Carinthia. *Peren.*

123. *Sordidus*, or *Uralensis*. Scotl. Norway. *Per.*

124. *Baicalensis*. At Lake Baikal. *Peren.*

125. *Monspessulanus*. Montpellier, Switz. *Per.*

126. *Elongatus*. Galatia. *Per.*

127. *Latifolius*. In the East. *Peren.*

128. *Cinereus*. Armenia. *Peren.*

129. *Alyssoides*. In the East. *Peren.*

130. *Incanus*. Provence. *Peren.*

131. *Incurvus*. Algiers. *Peren.*

132. *Rotundifolius*. Tunis near Sbiba. *Peren.*

133. *Macrorhizus*. Spain. *Peren.*

134. *Campestris*. Germany, France, Switz. *Per.*

135. *Viscosus*. Dauphiny, Switz. Piedm. *Peren.*

136. *Leptophyllus*. Siberia. *Peren.*

137. *Sanguinolentus*. Mts. at the Caspian. *Per.*

138. *Uncatus*. Aleppo. *Peren.*

139. *Pauciflorus*. Dauria. *Peren.*

140. *Buchtormensis*. Altaian Mountains. *Peren.*

141. *Testiculatus*. About the Caspian. *Peren.*

142. *Rupifragus*. Tauria. *Peren.*

143. *Diffusus*. At the Caspian and Tartary. *Per.*

144. *Galactites*. Beyond L. Baikal. *Peren.*

145. *Nummularius*. Candia. *Peren.*

146. *Lanigerus*. Barbary near Cafsa. *Peren.*

147. *Exscapus*. Switzerland, Thuringia, Austria, and the East. *Peren.*

148. *Tragacanthoides*. Armenia. *Peren.*

149. *Triphyllus*. Islands of L. Baikal. *Peren.*

150. *Lagopodioides*. *Shr.* 151. *Lagurus*. *Shrub.*

152. *Angustifolius*. *Shrub.*

153. *Pungens*. Galatia. *Shrub.*

154. *Tragacantha*. Arragon, France, Sicily, and Barbary. *Shrub.*

155. *Echioides*. Candia. *Shrub.*

156. *Retusus*. In the East. *Shrub.*

157. *Poterium*. Granada and the East. *Shrub.*

158. *Aristatus*. Mts. in the S. of France. *Shrub.*

159. *Amarus*. Deserts of the Caspian. *Peren.*

160. *Coluteoides*. Mount Libanus. *Shrub.*

161. *Tumidus*. Arragon, Egypt, and Syria. *Shr.*

162. *Armatus*. Barbary near Cafsa. *Shrub.*

163. *Creticus*. Mount Ida in Candia. *Shrub.*

164. *Leucophyllus*. Armenia. *Shrub.*

165. *Caucasicus*, or *cryptocarpos*. Caucasus. *Shr.*

166. *Gummifer*, or *caucasicus* of Persoon. Mount Libanus. *Shrub.*

167. *Erianthus*. *Shr.* 168. *Microcephalus*. *Shr.*

169. *Eriocephalus*. Armenia. *Shrub.*

170. *Plumosus*. Galatia. *Shrub.*

171. *Aureus*. Armenia. *Shrub.*

172. *Compactus*. *Shr.* 173. *Longifolius*. *Shr.*

174. *Pugniformis*. Armenia, Syria, Palestine. *Shr.*

*175. *Geminiflorus*. Cold parts of Quito, and mount Antisana. (Humb. *Plant. Equinoct.*)

For a new arrangement of this genus, and for an account of some new species, we must refer the reader to the *Astragalogia* of Decandolle, *Par.* 1802, or to Persoon's *Synopsis*, v. ii. p. 334, where this arrangement is adopted.

Sp. 18, 28, 78, 79, 150—152, 167, 168, 172, 173, from Armenia.

Sp. 17, 19—21, 27, 29—31, 81, 82, 85—95, 104, 105, 113—121, from Siberia.

1380. BISSERULA. *Legum.* 2-loc. planum; dissepimento contrario, utrinque serratum.

1. *Pelecinus*. Sicily, Spain, Provence. *Ann.*

1378. PHACA. *Cal.* 5-dent. dentibus 2 superioribus remotioribus. *Legum.* semibiloc. inflatum.

1. *Bætica*. Spain and Portugal. *Peren.*

2. *Floridana*. Florida. *Ann.*

3. *Salsula*. Dauria. *Peren.*

4. *Alpina*. Switz. France, Austria, Siberia. *Per.*

5. *Frigida*. Lapland, Norway, Switzerland, Austria, Salzburg, and Styria. *Peren.*

6. *Australis*. Switzerland, Austria, Salzburg, Italy, and Provence. *Peren.*

7. *Arenaria*. Siberia. *Peren.*

8. *Halicacaba*. Galatia. *Peren.*

9. *Trifoliata*. China. *Peren.*

10. *Vesicaria*. Armenia. *Peren.*

11. *Incana*. Armenia. *Peren.*

*12. *Glabra*. Provence. *Per.* } Decand. *Astrag.*
*13. *Triflora*. Peru. } p. 60.

SECT. IV. *Leguminous, and nearly with one Seed.*

1317. DALBERGIA. *Cal.* obsolete-5-dent. *Legum.* foliaceum planum non dehiscens. *Sem.* solitaria vel bina.

1. *Monetaria*. Wet parts of Surinam. *Shrub.*

2. *Heterophylla*. *Shr.* 5. *Rubiginosa*. *Shr.*

3. *Arborea*. *Shrub.* 6. *Paniculata*. *Shr.*

4. *Latifolia*. *Shrub.*

7. *Lanceolaria*. Ceylon and Malabar. *Shrub.*

*8. *Domingensis*. St Domingo. (*Turpin.*)

*9. *Latisiliqua*. South America. (Desf. *Cat.*)

*10? *Dephaca*. China and Cochinchina. (*Loureiro.*)

Sp. 2, 3, from E. Indies; 4—6 from Coromandel.

1381. DALEA. *Alæ* et *Carina* columnæ staminum adnatæ. *Stam.* 5 ad 10 connata absque filamento libero. *Legum.* 1-spermum.

1. *Cliffortiana*. Terra Firma. *Ann.*

2. *Alopecuroides*. North America. *Ann.*

3. *Candida*. N. Amer. 4. *Violacea*. N. Amer.

5. *Kuhnistera*. Carolina.

* 38. *Attenuatus.* Genoa. (Viviani, *Fl. Ital.*)

† 1356. Vicia. *Stigma* latere inferiore transverse barbatum.
1. *Pisiformis.* Hung. Aust. and Germ. *Per.*
2. *Caroliniana.* Carolina. *Peren.*
3. *Pontica.* Turkey.
4. *Dumetorum.* France and Germany. *Peren.*
5. *Sylvatica.* Engl. Swed. Germ. Fran. *Per.*
6. *Americana.* Pennsylvania. *Peren.*
7. *Variegata.* In the East. *Peren.*
8. *Cassubica.* Germany and France. *Peren.*
9. *Atropurpurea.* Hieres Isles and Algiers.
10. *Villosa.* Germ. Aust. and Hungary. *Ann.*
11. *Polyphylla.* Hung. Algiers, and the East.
12. *Cracca.* Engl. and other pts. of Eur. *Per.*
13. *Tenuifolia.* Hills of Germany and Tauria.
14. *Onobrychioides.* Switzerland, Italy, France, and Barbary. *Ann.*
15. *Biennis.* Siberia. *Bien.*
16. *Altissima.* Barbary, near Arzeau. *Peren.*
17. *Nissoliana.* In the East. *Ann.*
18. *Benghalensis.* Bengal. *Ann.*
19. *Canescens.* Top of Mount Libanus. *Ann.*
20. *Capensis.* Cape of Good Hope. *Peren.*
21. *Pellucida.* Cape of Good Hope. *Peren.*
22. *Fruticosa.* Peru. *Shrub.*
23. *Ervilia.* France, Italy, and the East. *Ann.*
24. *Biflora.* Algiers.
25. *Oroboides.* Croatia and Carniola. *Peren.*
26. *Sativa.* Engl. and other pts. of Eur. *Ann.*
27. *Globosa.* *Ann.*
28. *Angustifolia.* Groves of Germany. *Ann.*
29. *Amphicarpa.* Provence. *Ann.*
30. *Pusilla.* Pennsylvania. *Ann.*
31. *Lathyroides.* Britain, Norway, Germ. *Ann.*
32. *Lutea.* Britain, France, Germany, Spain, Italy, and the East. *Ann.*
33. *Hybrida.* Eng. S. of France, and Aust. *Ann.*
34. *Pannonica.* Mead. of Aust. and Hung. *Ann.*
35. *Lævigata.* At Weymouth in Engl. *Per.*
36. *Sordida.* Meadows of Hungary. *Ann.*
37. *Peregrina.* France. *Ann.*
38. *Monantha.* Barbary. *Ann.*
39. *Sepium.* Engl. and other pts. of Eur. *Per.*
40. *Bithynica.* Engl. Italy, and Barbary. *Ann.*
41. *Platycarpos.* *Ann.*
42. *Narbonensis.* France, England, Siberia. *Ann.*
43. *Faba.* Persia near the Caspian. *Ann.*
44. *Serratifolia.* Wet parts of Hungary. *Ann.*
* 45. *Parviflora.* Carolina, Virginia. (*Mich.* ii. 69.)
* 46. *Pyrenaica.* Pyrenees. (Decand. *Syn.* 360.)
* 47. *Hirta.* Near Nice. (Balbis. *Miscell.*)

Sect. III. *Legumen nearly 2-celled.*

1379. Astragalus. *Legum.* plerumque 2-loc. gibbum. *Sem.* beserialia.
1. *Christianus.* Armenia. *Peren.*
2. *Sieversianus.* Siberia. *Peren.*
3. *Tomentosus.* Egypt. *Peren.*
4. *Alopecuroides.* Siberia and Spain. *Peren.*
5. *Maximus.* Armenia. *Peren.*
6. *Alopecias.* Siberia at the lake Alagul. *Per.*
7. *Narbonensis.* Spain and S. of France. *Per.*
8. *Ponticus.* Tauria and Armenia. *Peren.*
9. *Vulpinus.* Sandy hills of Siberia. *Peren.*
10. *Macrocephalus.* Galatia. *Peren.*
11. *Capitatus.* In the East.
12. *Dasyanthus.* Siberia, Caucasus, Hung. *Per.*
13. *Fragiformis.* Siberia. *Peren.*
14. *Onobrychioides.* Hills of Persia. *Peren.*
15. *Pilosus.* Siberia, Thuringia. *Peren.*
16. *Dealbatus.* Tauria and Caucasus. *Shrub.*
17. *Sulcatus.* *Per.* 20. *Versicolor.* *Per.*
18. *Hedysaroides.* *Per.* 21. *Leptostachys.* *Per.*
19. *Floribundus.* *Per.* 22. *Melilotoides.* *Per.*
23. *Hyrcanus.* Shores of the Caspian at Derbend. *Shrub.*
24. *Virgatus.* Russia at the Caspian, Hung. *Shr.*
25. *Garbanzillo.* Cold parts of Peru. *Shrub.*
26. *Vimineus.* Altaian Mountains, Caucasus. *Shr.*
27. *Arbuscula.* *Shr.* 30. *Vaginatus.* *Peren.*
28. *Aduncus.* *Shrub.* 31. *Tenuifolius.* *Per.*
29. *Fruticosus.* *Shrub.*
32. *Peregrinus.* In the East ?
33. *Asper.* At the Caspian and in Hung. *Per.*
34. *Galegiformis.* Armenia and Caucasus. *Per.*
35. *Chinensis.* China. *Peren.*
36. *Virescens.* Siberia, Armenia, Algiers. *Per.*
37. *Uliginosus.* Siberia. *Peren.*
38. *Carolinianus.* Carolina. *Peren.*
39. *Schanginianus.* Siberia. *Peren.*
40. *Canadensis.* Virginia and Canada. *Peren.*
41. *Odoratus.* In the East. *Peren.*
42. *Cicer.* Austria, Switzerland, Italy, Germany, and Russia. *Peren.*
43. *Glycyphyllos.* Engl. and other pts. of Eur. *Per.*
44. *Lanatus.* Tauria. *Peren.*
45. *Tunetanus.* Mts. of Sliba and Tunis. *Per.*
46. *Microphyllus.* Germany and Thuringia. *Per.*
47. *Parviflorus.* About Baikal. *Ann.* *Bien.*
48. *Trimestris.* Egypt. *Ann.*
49. *Hamosus.* Messina, Montpel. Barbary. *Ann.*
50. *Annularis.* Egypt. 51. *Scorpioides.* Spain. *An.*
52. *Contortuplicatus.* Siberia, Hungary. *Ann.*
53. *Bæticus.* Sicily, Spain, Portugal, Tauria. *An.*
54. *Stella.* France, Spain, and N. of Africa. *Ann.*
55. *Sesameus.* Italy, South of France. *Ann.*
56. *Geniculatus.* Barbary near Mascar. *Ann.*
57. *Pentaglotis.* Spain. *Ann.*
58. *Epiglottis.* Spain, Provence, the East. *Ann.*
59. *Hypoglottis.* Britain, Germany, France, Russia, Denmark, and Barbary. *Peren.*
60. *Syriacus.* *Peren.*
61. *Humifusus.* Cappadocia. *Peren.*
62. *Leontinus.* The Tyrol and in Switz. *Per.*
63. *Tauricus.* Tauria. *Peren.*
64. *Lunatus.* Persia. *Shrub.*
65. *Austriacus.* Austria, Moravia, Hungary, Russia, Tauria. *Shrub.*
66. *Subulatus.* Tauria and Siberia. *Shrub.*
67. *Arenarius.* Germany and Denmark. *Shrub.*
68. *Leucophæus.* *Shrub.*
69. *Depressus.* Pyrenees, Dauphiny, Savoy. *Shr.*
70. *Glaux.* Spain. *Ann.*
71. *Reduncus.* Russia near the R. Cuma. *Shrub.*
72. *Sinicus.* China. *Ann.*
73. *Lineatus.* The East. *Peren.*
74. *Albidus.* France, Italy, Hungary. *Shrub.*
75. *Nigrescens.* Russia. *Peren.*
76. *Ornithopodioides.* In the East. *Peren.*
77. *Fragrans.* Cappadocia. *Peren.*
78. *Declinatus.* Armenia. *Peren.*
79. *Barbatus.* Armenia. *Peren.*
80. *Onobrychis.* Switzerland, Germany, Austria, and Siberia. *Peren.*
81. *Adsurgens.* *Per* 82. *Laxmanni.* *Peren.*
83. *Alpinus.* Mts. of Lapland, Switz. Siberia. *Per.*

84. *Pumilio.* In the Curiles Islands. *Peren.*
85. *Pygmæus.* *Per.* 91. *Muricatus.* *Per.*
86. *Ammodytes.* *Per.* 92. *Dagurícus.* *Per.*
87. *Dasyphyllus.* *Per.* 93. *Oxyphyllus.* *Bien.*
88. *Verticillaris.* *Per.* 94. *Baicalia.* *Peren.*
89. *Polyphyllus.* *Per.* 95. *Linarius.* *Peren.*
90. *Sylvaticus.* *Per.*
96. *Cymbiformis.* Portugal. *Ann.*
97. *Montanus.* Switz. Austria, the Vallais. *Per.*
98. *Physodes.* Siberia and Tauria. *Peren.*
99. *Ampullatus.* At the Jenisey and Baikal. *Per.*
100. *Cæspitosus.* Dauria. *Peren.*
101. *Longiflorus.* Tartary. *Peren.*
102. *Utriger.* Uralian Mts. and Tauria. *Peren.*
103. *Caprinus.* Barbary. *Peren.*
104. *Songaricus.* Sib. *Per.* 105. *Caudatus.* Sib. *Per.*
106. *Follicularis.* Siberia. *Peren.*
107. *Densifolius.* In the East. *Peren.*
108. *Hirsutus.* In the East. *Peren.*
109. *Globosus.* Armenia. *Peren.*
110. *Libanotis.* Mount Libanus. *Peren.*
111. *Bicolor.* In the East. *Peren.*
112. *Psoralioides.* In the East. *Peren.*
113. *Laguroides.* Siberia. *Peren.*
114. *Lupulinus.* Siberia. *Peren.*
115. *Leucanthus.* Siberia. *Peren.*
116. *Argentatus.* Siberia. *Peren.*
117. *Candicans.* Siberia. *Peren.*
118. *Grandiflorus.* Siberia. *Peren.*
119. *Altaicus.* Sib. *Per.* 120. *Setosus.* Sib. *Per.*
121. *Ambiguus.* Siberia. *Peren.*
122. *Uralensis.* Siberia, Pyrenees, Switzerland, and Carinthia. *Peren.*
123. *Sordidus,* or *Uralensis.* Scotl. Norway. *Per.*
124. *Baicalensis.* At Lake Baikal. *Peren.*
125. *Monspessulanus.* Montpellier, Switz. *Per.*
126. *Elongatus.* Galatia. *Per.*
127. *Latifolius.* In the East. *Peren.*
128. *Cinereus.* Armenia. *Peren.*
129. *Alyssoides.* In the East. *Peren.*
130. *Incanus.* Provence. *Peren.*
131. *Incurvus.* Algiers. *Peren.*
132. *Rotundifolius.* Tunis near Sbiba. *Peren.*
133. *Macrorhizus.* Spain. *Peren.*
134. *Campestris.* Germany, France, Switz. *Per.*
135. *Viscosus.* Dauphiny, Switz. Piedm. *Peren.*
136. *Leptophyllus.* Siberia. *Peren.*
137. *Sanguinolentus.* Mts. at the Caspian. *Per.*
138. *Uncatus.* Aleppo. *Peren.*
139. *Pauciflorus.* Dauria. *Peren.*
140. *Buchtormensis.* Altaian Mountains. *Peren.*
141. *Testiculatus.* About the Caspian. *Peren.*
142. *Rupifragus.* Tauria. *Peren.*
143. *Diffusus.* At the Caspian and Tartary. *Per.*
144. *Galactites.* Beyond L. Baikal. *Peren.*
145. *Nummularius.* Candia. *Peren.*
146. *Lanigerus.* Barbary near Cafsa. *Peren.*
147. *Exscapus.* Switzerland, Thuringia, Austria, and the East. *Peren.*
148. *Tragacanthoides.* Armenia. *Peren.*
149. *Triphyllus.* Islands of L. Baikal. *Peren.*
150. *Lagopodioides.* *Shr.* 151. *Lagurus.* *Shrub.*
152. *Angustifolius.* *Shrub.*
153. *Pungens.* Galatia. *Shrub.*
154. *Tragacantha.* Arragon, France, Sicily, and Barbary. *Shrub.*
155. *Echioides.* Candia. *Shrub.*
156. *Retusus.* In the East. *Shrub.*
157. *Poterium.* Granada and the East. *Shrub.*
158. *Aristatus.* Mts. in the S. of France. *Shrub.*
159. *Amarus.* Deserts of the Caspian. *Peren.*
160. *Coluteoides.* Mount Libanus. *Shrub.*
161. *Tumidus.* Arragon, Egypt, and Syria. *Shr.*
162. *Armatus.* Barbary near Cafsa. *Shrub.*
163. *Creticus.* Mount Ida in Candia. *Shrub.*
164. *Leucophyllus.* Armenia. *Shrub.*
165. *Caucasicus,* or *cryptocarpos.* Caucasus. *Shr.*
166. *Gummifer,* or *caucasicus* of Persoon. Mount Libanus. *Shrub.*
167. *Erianthus.* *Shr.* 168. *Microcephalus.* *Shr.*
169. *Eriocephalus.* Armenia. *Shrub.*
170. *Plumosus.* Galatia. *Shrub.*
171. *Aureus.* Armenia. *Shrub.*
172. *Compactus.* *Shr.* 173. *Longifolius.* *Shr.*
174. *Pugniformis.* Armenia, Syria, Palestine. *Shr.*
* 175. *Geminiflorus.* Cold parts of Quito, and mount Antisana. (Humb. *Plant. Equinoct.*)

For a new arrangement of this genus, and for an account of some new species, we must refer the reader to the *Astragalogia* of Decandolle, *Par.* 1802, or to Persoon's *Synopsis,* v. ii. p. 334, where this arrangement is adopted.

Sp. 18, 28, 78, 79, 150—152, 167, 168, 172, 173, from Armenia.

Sp. 17, 19—21, 27, 29—31, 81, 82, 85—95, 104, 105, 113—121, from Siberia.

1380. Bisserula. *Legum.* 2-loc. planum; dissepimento contrario, utrinque serratum.
1. *Pelecinus.* Sicily, Spain, Provence. *Ann.*

1378. Phaca. *Cal.* 5-dent. dentibus 2 superioribus remotioribus. *Legum.* semibiloc. inflatum.
1. *Bœtica.* Spain and Portugal. *Peren.*
2. *Floridana.* Florida. *Ann.*
3. *Salsula.* Dauria. *Peren.*
4. *Alpina.* Switz. France, Austria, Siberia. *Per.*
5. *Frigida.* Lapland, Norway, Switzerland, Austria, Salzburg, and Styria. *Peren.*
6. *Australis.* Switzerland, Austria, Salzburg, Italy, and Provence. *Peren.*
7. *Arenaria.* Siberia. *Peren.*
8. *Halicacaba.* Galatia. *Peren.*
9. *Trifoliata.* China. *Peren.*
10. *Vesicaria.* Armenia. *Peren.*
11. *Incana.* Armenia. *Peren.*
* 12. *Glabra.* Provence. *Per.* } Decand. *Astrag.*
* 13. *Triflora.* Peru. } p. 60.

Sect. IV. *Leguminous, and nearly with one Seed.*

1317. Dalbergia. *Cal.* obsolete-5-dent. *Legum.* foliaceum planum non dehiscens. *Sem.* solitaria vel bina.
1. *Monetaria.* Wet parts of Surinam. *Shrub.*
2. *Heterophylla.* *Shr.* 5. *Rubiginosa.* *Shr.*
3. *Arborea.* *Shrub.* 6. *Paniculata.* *Shr.*
4. *Latifolia.* *Shrub.*
7. *Lanceolaria.* Ceylon and Malabar. *Shrub.*
* 8. *Domingensis.* St Domingo. (*Turpin.*)
* 9. *Latisiliqua.* South America. (Desf. *Cat.*)
* 10? *Dephaca.* China and Cochinchina. (*Loureiro.*)

Sp. 2, 3, from E. Indies; 4—6 from Coromandel.

1381. Dalea. *Alæ* et *Carina* columnæ staminum adnatæ. *Stam.* 5 ad 10 connata absque filamento libero. *Legum.* 1-spermum.
1. *Cliffortiana.* Terra Firma. *Ann.*
2. *Alopecuroides.* North America. *Ann.*
3. *Candida.* N. Amer. 4. *Violacea.* N. Amer.
5. *Kuhnistera.* Carolina.

6. *Enneaphylla.* Carthagena. *Shrub.*
7. *Phymatodes.* New Carthagena.
8. [illegible] *Peren.* 12. *Pedunculata.*
9. [illegible] *Ann.* 13. *Lutea.* *Peren.*
10. *Mutabilis.* *Peren.* 14. *Tomentosa.* *Per.*
11. *Lagopus.* *Ann.*
*15. *Prostrata.* New Spain. *Ortega,*
[illegible] 14, from Mexico and New Spain.

1402 PSORALEA. *Cal.* longit. [illegible] *Stam.* diadelpha. *Legum.* [illegible]

1. *Pinnata.* *Shrub.* 11. *Tenuifolia.* *Shr.*
2. *Aculeata.* *Shrub.* 12. *Axillaris.*
3. *Odoratissima.* *Shr.* 13. *Decumbens.* *Shrub.*
4. *Verrucosa.* *Shrub.* 14. *Hirta.* *Shrub.*
5. *Imbricata.* *Shrub.* 15. *Stachydis.* *Shrub.*
6. *Bracteata.* *Shrub.* 16. *Striata.* *Shrub.*
7. *Involucrata.* *Shr.* 17. *Racemosa.*
8. *Spicata.* *Shrub.* 18. *Argentea.*
9. *Aphylla.* *Shrub.* 19. *Tomentosa.*
10. *Multicaulis.* *Per.* 20. *Repens.*
21. *Bituminosa.* Sicily, Italy, Narbonne. *Shrub.*
22. *Glandulosa.* Peru. *Shrub.*
23. *Palæstina.* Palestine. *Peren.*
24. *Americana.* Madeira. *Shrub.*
25. *Capitata.* 26. *Rotundifolia.*
27. *Corylifolia.* East Indies. *Ann.*
28. *Pentaphylla.* Mexico.
29. *Prostrata.* Cape of Good Hope. *Peren.*
*30. *Melilotoides.* Carolina and Florida } Mich.
31. *Canescens.* Carolina and Georgia. } *Fl. Amer.*
*32. *Lupinellus.* Carolina. } ii. p. 56.
*33. *Scutellata.* Cochinchina. } *Loureiro,* ii.
*34. *Rubescens.* Cochinchina. } p. 540.

1403 TRIFOLIUM. *Flores* subcapitati. *Legum.* vix calyce longius non dehiscens, deciduum.

1. *Cæruleum.* Bohemia and Lybia. *Ann.*
2. *Indicum.* India and Africa. *Ann.*
3. *Messanense.* Sicily and Barbary. *Ann.*
4. *M*[illegible] Barbary. *Ann.*
5. *M*[illegible] Wet parts of Hungary. *Per.*
6. [illegible] Poland. *Ann.*
[illegible] Wet parts of the Bannat. *Peren.*
[illegible] Engl. and other pts. of Eur. *Ann. B.*
[illegible] *Ann.*
[illegible] *Ann.*
[illegible] Denmark. *Ann.*
[illegible]

35. [illegible] Cape of Good Hope.
36. *Rubens.* Italy, France, and Switzerland.
37. *Pratense.* Eng. and other parts of Eur. *Per.*
38. *Medium.* Engl. and other parts of Eur. *Per.*
39. *Alpestre.* Europe in Sweden. *Peren.*
40. *Pannonicum.* Hungary and Armenia. *Per.*
41. [illegible] Galatia. *Peren.*
42. *Canescens.* Cappadocia. *Peren.*
43. *Maritimum.* Coasts of England. *Ann. Bien.*
44. *Squarrosum.* Spain. *Ann.*
45. *Incarnatum.* Italy, Switzerl. and France. *Ann.*
46. *Pallidum.* Meadows of the Bannat. *Ann. Bien.*
47. *Ochroleucum.* England, Switzerland, Austria, and Montpellier. *Peren.*
48. *Angustifolium.* France, Italy, Germany, and Carniola. *Ann.* 49. *Involucratum.*
50. *Arvense.* England and other parts of Europe, North America. *Ann.*
51. *Stellatum.* Sicily, Italy, S. of Fran. Carn. *Ann.*
52. *Clypeatum.* In the East. *Ann.*
53. *Albidum.* *Ann.*
54. *Scabrum.* Engl. France, Italy, and Germ. *Ann.*
55. *Glomeratum.* England and Spain. *Ann.*
56. *Parviflorum.* Hungary and Siberia. *Ann.*
57. *Striatum.* Engl. Germ. France and Spain. *Ann.*
58. *Gemellum.* Spain. *Ann.*
59. *Phleoides.* Spain. *Ann.*
60. *Alexandrinum.* Egypt. *Ann.*
61. *Suffocatum.* Coasts of Engl. and Sicily. *Ann.*
62. *Uniflorum.* Syria, Arabia, Constantinople, and Candia.
63. *Spumosum.* France and Italy. *Ann.*
64. *Resupinatum.* Germ. Holland, and Italy. *Ann.*
65. *Tomentosum.* Fran. Spain, Portug. Barb. *Per.*
66. *Fragiferum.* Engl. Fran. Germ. Sweden. *Per.*
67. *Montanum.* Meadows of Europe. *Peren.*
68. *Speciosum.* Candia.
69. *Agrarium.* Meadows of Europe. *Ann.*
70. *Spadiceum.* Meadow of Europe. *Ann.*
71. *Procumbens.* Engl. and other pts. of Eur. *Ann.*
72. *Filiforme.* England and Germany. *Ann.*
*73. *Carolinianum.* Carolina. (Mich. i. [illegible])
*74. *Micheliamum.* Italy. *Ann.* } Savi. *Fl. Pis.* i.
*75. *Elegans.* Near Pisa. } p. 136.
*76. *Pallescens.* Carinthia.
*77. [illegible] Near Fontainbleau. [illegible]
*78. [illegible] (Wulfen in Roemer's *Bot.* [illegible])
*79. [illegible] Europe. *Ann.*
*80. [illegible] Near Pisa. Savi. [illegible]
*81. [illegible] Hungary. *Fl. Hung.*
*82. [illegible] Pisa and Corsica. Savi.
*83. [illegible]
*84. [illegible] Europe. [illegible]
*85. [illegible]

[illegible]

ororia. East Indies. *Peren.*
YLOSANTHES. *Cal.* tubulatus longissimus
ifer. *Germ.* sub *cor.* *Loment.* 1 seu 2-arti-
m hamatum.
rocumbens. Jamaica. *Peren.*
iscosa. Jamaica. *Peren.*
Mucronata. Ceylon and Tranquebar. *Peren.*
latior. Carolina, Virginia, and Pennsylvania.
ujanensis. Meadows of Guiana.
Hispida. Cayenne. (Rich. *Ac. Soc. Par.*)
YLISTA. *Cal.* 4-fid. cor. major, lacinia su-
apice bifida, infima maxima. *Cor.* persistens.
n. subdispermum.
Scariosa. Mountains of Coromandel. *Shrub.*
LYCYRRHIZA. *Cal.* 2-lab. ¼. *Legum.* ova-
compressum.
chinata. Apulia and Tartary. *Peren.*
ætida. Mount Atlas. *Peren.*
landulifera. Hungary. *Peren.*
labra. France, Italy, Spain, Franconia. *Per.*
sperrima. Between R. Wolga and Jaik. *Per.*
Hirsuta. In the East. *Peren.*
IMORPHA, or PARIVOA of Persoon. *Cal.* 3
fid. *Vexill.* amplissimum crenulatum. *Alæ* 0.
a 0. *Legum.* 1-spermum compressum mag-

Grandiflora. Banks of rivers in Guiana. *Shr.*
Tomentosa. Woods of Guiana.

. V. *Lomentum separating into Joints.*

ESCHYNOMENE. *Cal.* bilabiatus. *Lomentum*
ressum articulis truncatis, monospermis.
rborea. India. *Shrub.*
ristata. St Domingo and Santa Cruz. *Shr.*
Sensitiva. Jamaica and Martinique. *Shrub.*
spera. East Indies. *Ann.*
Hispida. North America. *Ann.*
mericana. Jamaica. *Ann.*
Indica. India.
Diffusa. Tranquebar. *Ann.*
Pumila. India. *Ann.*
Longifolia. New Spain. (*Ortega.*)
iscidula. Florida. (*Mich.* ii. 75.)
Heterophylla. Cochinchina. } Loureiro, *Fl.*
Lagenaria. Cochinchina. } *Cochinch.*
ULLERA. *Cal.* 4-dent. *Loment.* moniliforme
lis carnosis 1-spermis filo cohærentibus.
Moniliformis. Surinam. *Shrub.*
HEDYSARUM. *Cal.* 5-fid. *Cor.* carina trans-
btusa. *Loment.* articulis 1-spermis compressis.
lhagi. Tart. Persia, Syria, Mesopotamia. *Shr.*
Bupleurifolium. India.
ramineum. Tranquebar. *Ann.*
lumaceum. Arabia Felix. *Peren.*
Rugosum. Guinea. *Peren.*
Nummularifolium. East Indies. *Peren.*
Moniliferum. *Per.* 8. *Styracifolium.* Asia. *Per.*
Reniforme. India. *Shrub.*
elutinum. Warm parts of America. *Shrub.*
Gangeticum. *Ann.* 14. *Vaginale.* *Ann.*
Maculatum. *Ann.* 15. *Triquetrum.*
Latebrosum. *Shr.* 16. *Strobiliferum.* *Shr.*
espertilionis. Cochinchina. *Ann.* *Bien.*
Diphyllum. E. Indies and the Antilles. *Ann.*
Conjugatum. Ceylon. *Ann.*
Pulchellum. India. *Shrub.*
Spartium. East Indies. *Shrub.*
Lineatum. Ceylon.

Class XVII.
Diadelphia.

23. *Diffusum.* Tranquebar. *Shrub.*
24. *Incanum.* Jamaica and Hispaniola. *Shrub.*
25. *Dichotomum.* Tranquebar. *Shrub.*
26. *Tomentosum.* Japan.
27. *Retroflexum.* India. *Shrub.*
28. *Striatum.* Japan. 29. *Sericeum.* Do. *Shr.*
30. *Umbellatum.* Ceylon, Java, Mauritius. *Shr.*
31. *Australe.* Isle of Tauna, New Caledonia. *Shr.*
32. *Squarrosum.* Cape of Good Hope.
33. *Biarticulatum.* East Indies. *Shrub.*
34. *Lappaceum.* Arabia Felix. *Shrub.*
35. *Heterocarpon.* East Indies. *Shrub.*
36. *Adscendens.* Jamaica. *Shrub.*
37. *Mauritianum.* Mauritius. *Peren.*
38. *Gyrans.* Bengal at the Ganges. *Bien.*
39. *Trigonum.* Mountains of Jamaica. *Shrub.*
40. *Canadense.* Virginia and Canada. *Peren.*
41. *Canescens.* Virginia. *Peren.*
42. *Repandum.* Arabia Felix. *Shrub.*
43. *Capitatum.* Ceylon. *Shrub.*
44. *Marilandicum.* Carolina and Virginia. *Per.*
45. *Obtusum.* Pennsylvania. *Peren.*
46. *Supinum.* Jamaica. *Shrub.*
47. *Tortuosum.* West Indies. *Shrub.*
48. *Molle.* Island of Santa Cruz. *Shrub.*
49. *Microphyllum.* Japan. *Shrub.*
50. *Viridiflorum.* Virginia. *Peren.*
51. *Racemosum.* Japan. *Shrub.*
52. *Frutescens.* North America. *Shrub.*
53. *Hirtum.* North America. *Shrub.*
54. *Trichocarpum.* Siberia. *Shrub.*
55. *Junceum.* Siberia and Tartary. *Ann.* *Per.*
56. *Reticulatum.* N. Amer. *Per.* 57. *Villosum.*
58. *Violaceum.* Virginia.
59. *Divergens.* North America. *Peren.*
60. *Ciliare.* North America. *Peren.*
61. *Paniculatum.* Virginia. *Peren.*
62. *Caudatum.* Japan.
63. *Tuberosum.* East Indies. *Shrub.*
64. *Cuspidatum.* North America. *Peren.*
65. *Glutinosum.* North America. *Peren.*
66. *Nudiflorum.* Virginia, Pennsylvania. *Peren.*
67. *Axillare.* Jamaica. *Peren.*
68. *Pilosum.* Japan.
69. *Spirale.* Jamaica. *Shrub.*
70. *Scorpiurus.* Hispaniola and Jamaica.
71. *Biflorum.* East Indies.
72. *Prostratum.* Pennsylvania. *Peren.*
73. *Repens.* Virginia. *Shrub.*
74. *Virgatum.* Japan.
75. *Heterophyllum.* Ceylon. *Peren.*
76. *Triflorum.* Malabar, Ceylon, China, Jamaica, and Guiana. *Peren.*
77. *Ciliatum.* Cape. *Per.* 78. *Tetraphyllum.* Do.
79. *Barbatum.* Dry parts of Jamaica.
80. *Lagopodioides.* China.
81. *Uncinatum.* Caraccas. *Shrub.*
82. *Volubile.* North America.
83. *Pictum.* Guinea. *Shrub.*
84. *Argenteum.* Siberia. *Peren.*
85. *Nitidum.* America. *Peren.*
86. *Varium.* Armenia. *Peren.*
87. *Fruticosum.* Siberia. *Shrub.*
88. *Sennoides.* East Indies. *Shrub.*
89. *Alpinum.* Siberia. *Peren.*
90. *Obscurum.* Switzerland, Savoy, Carinthia, and Austria. *Peren.*
91. *Tauricum.* Tauria. *Peren.*

Class XVII. Diadelphia.

92. *Incarnatum.* Japan.
93. *Carnosum.* Barbary. *Peren.*
94. *Coronarium.* Italy.
95. *Flexuosum.* Asia. *Ann.*
96. *Pallidum.* Mt. Atlas near Mascar. *Peren.*
97. *Capitatum.* Barbary near Cafsa.
98. *Humile.* Spain and south of France. *Per.*
99. *Muricatum.* Patagonia. *Peren.*
100. *Spinosissimum.* Spain. *Ann.*
101. *Virginicum.* Virginia.
102. *Pumilum.* Spain. *Shrub.*
103. *Venosum.* Mts. of Sbiba in Tunis. *Peren.*
104. *Circinatum.* Cappadocia. *Peren.*
105. *Tournefortii.* Armenia. *Peren.*
106. *Pallasii.* Tauria. *Peren.*
107. *Ornatum.* Galatia. *Peren.*
108. *Onobrychis.* England, France, Germany, Bohemia, and Siberia. *Peren.*
109. *Album.* Mountains of the Bannat. *Peren.*
110. *Saxatile.* Provence, Nice, and Siberia. *Per.*
111. *Petræum.* Caucasus. *Peren.*
112. *Confertum.* Near Sbiba in Tunis. *Peren.*
113. *Caput galli.* Provence. *Peren.*
114. *Crista galli.* South of Europe. *Ann.*
115. *Crinitum.* East Indies. *Shrub.*
116. *Comosum.* East Indies. *Shrub.*
117. *Cornutum.* In the East. *Shrub.*
* 118. *Terminale.* Cayenne. (*Richard.*)
* 119. *Cylindricum.* India and Isle of France.
* 120. *Sagittatum.* East Indies.
* 121. *Salicifolium.* Do. * 122. *Polycarpon.* Do.
* 123. *Diversifolium.* Madagascar.
* 124. *Micranthos.* Madagascar.
* 125. *Stoloniferum.* Antilles.
* 126. *Reptans.* St Domingo.
* 127. *Laburnifolium.* Java.
* 128. *Obcordatum.* Java.
* 129. *Glabellum.* Lower Carolina. } Michaux, *Fl. Amer.* ii. p. 73.
* 130. *Coriaceum.* North America.
* 131. *Rotundifolium.* Carolina.
* 132. *Bracteosum.* Virgin. and Carol.
* 133. *Asperum.* * 134. *Lutescens.* China.
* 135. *Erythrinæfolium.* South America.
* 136. *Barbatum.* Jamaica.
* 137. *Lineare.* Cochinchina. (*Lousiero.*)
* 138. *Punctatum.* * 141 *Brasilianum.*
* 139. *Bicolorum.* * 142. *Pendulum.*
* 140. *Falcatum.* * 143. *Pimpinellifolium.* Peru.
* 144. *Montanum.* Europe. } Decandolle, *Synops.*
* 145. *Supinum.* Dauphiny.

Sp. 7, 11—16, 139—142, from Brasil. See Poiret, *Encyc. Bot.* vol. vi. p. 400, &c.

1371. SMITHIA. *Cal.* 2-fid. 2-lab. *Stam.* divisa in 2 phalanges æquales *Lomenti* articulis distinctis 1-spermis stylo laterali connexis.

1. *Sensitiva.* East Indies. *Ann.*

1367. CORONILLA. *Cal.* 2-labiatus : $\frac{2}{3}$: dentibus superioribus connatis. *Vexill.* vix alis longius. *Lomentum* teres articulatum rectum.

1. *Grandiflora.* East Indies. *Shrub.*
2. *Coccinea.* East Indies, Society Isls, and Botany Island. *Shrub.*
3. *Occidentalis.* West Indies. *Shrub.*
4. *Sesban.* Hedges of Europe. *Shrub.*
5. *Aculeata.* Ceylon and Malabar. *Ann.*
6. *Cannabina.* Malabar. *Ann.*
7. *Picta.* N. Spain. 8. *Virgata.* Do. *Bien.*
9. *Emerus.* Geneva, Montpellier, Vienna. *Shr.*
10. *Juncea.* Marseilles and Montpellier. *Shrub.*
11. *Valentina.* Spain and Italy. *Shrub.*
12. *Glauca.* *Shrub.*
13. *Squamata.* Spain. *Shrub.*
14. *Coronata.* South of Europe. *Peren.*
15. *Minima.* South of France, Switzerland, Italy, and Spain. *Peren.*
16. *Pentaphylla.* Hills of Algiers. *Shrub.*
17. *Argentea.* Candia. *Shrub.*
18. *Cappadocica.* Cappadocia.
19. *Vaginalis.* Italy. *Peren.*
20. *Securidaca.* Spain. *Ann.*
21. *Varia.* Bohem. Denm. France, Germ. *Ann.*
22. *Globosa.* Candia. *Peren.*
23. *Cretica.* Candia. *Ann.*
24. *Parviflora.* Candia. *Peren.*
25. *Scandens.* Warm parts of America.
* 26. *Cochinchinensis.* Cochinchina. (*Loureiro.*)

‡ 1368. ORNITHOPUS. *Loment.* articulatum, teres arcuatum.

1. *Perpusillus.* England, France, Germany, Holland, and Spain. *Ann.*
2. *Compressus.* Italy and Sicily. *Ann.*
3. *Durus.* Hills of Valentia. *Peren.*
4. *Scorpioides.* France, Spain, and Italy. *Ann.*
5. *Tetraphyllus.* Jamaica.
* 6? *Ruber.* Cochinchina. (*Loureiro.*)
* 7. *Ebracteatus.* France, Spain, Port. (*Brotero.*)
* 8. *Repandus.* Barbary, Spain, Portug. (*Brotero.*)
* 9? *Sativus.* Portugal. (*Brotero.*)

1370. SCORPIURUS. *Loment.* isthmis interceptum revolutum, teres.

1. *Vermiculata.* *Ann.* 4. *Sulcata.* *Ann.*
2. *Purpurea.* Algiers. *Ann.* 5. *Subvillosa.* *Ann.*
3. *Muricata.* *Ann.*

Sp. 1, 3—5, from south of Europe.

‡ 1369. HIPPOCREPIS. *Loment.* compressum, altera sutura pluries emarginatum, curvum.

1. *Unisiliquosa.* Italy and Switzerland. *Ann.*
2. *Multisiliquosa.* South of France, Spain, and Italy. *Ann.*
3. *Balearica.* Minorca. *Shrub.*
4. *Comosa.* Engl. France, Germ. Italy. *Per.*
* 5. *Barbata.* Cochinchina. (*Loureiro.*)

SECT. VI. *Legumen with one Cell, and many Seeds.*

1386. TRIGONELLA. *Vexill.* et *alæ* subæquales, patentis, forma corollæ 3-pet.

1. *Ruthenica.* Siberia. *Peren.*
2. *Platycarpos.* Siberia. *Bien.*
3. *Striata.* Abyssinia? *Ann.*
4. *Polycerata.* Spain, Italy, Montpell. *Ann.*
5. *Hamosa.* Egypt. 6. *Hirsuta.* *Ann.*
7. *Villosa.* 8. *Armata.*
9. *Spinosa.* Candia. *Ann.*
10. *Corniculata.* South of Europe. *Ann.*
11. *Monspeliaca.* S. of France, Hungary. *An*
12. *Glabra.* Cape. 13. *Tomentosa.* Cape.
14. *Laciniata.* Egypt.
15. *Pinnatifida.* Spain. *Ann.*
16. *Fœnum græcum.* Montpellier. *Ann.*
17. *Indica.* East Indies. *Ann.*
* 18. *Hybrida.* France. (*Fl. Franç.*)
* 19. *Cancellata.* (*Persoon.*)

Sp. 6—8 from the Cape of Good Hope.

1350. GLYCINE. *Cal.* 2-lab. *Corollæ* carina a vexillum reflectens.

1. *Subterranea.* Brasil and Surinam. *An*

2. *Clandestina.* New Holland. *Shrub.*
3. *Sarmentosa.* Carolina. *Ann.*
4. *Monoica.* North America. *Ann.*
5. *Angulosa.* Pennsylvania.
6. *Triloba.* India. *Ann.* 7. *Villosa.* Japan.
8. *Javanica.* E. Indies.
9. *Angustifolia.* Cape. *Sh.* 12. *Glandulosa.* Cape.
10. *Heterophylla.* Cape. *Sh.* 13. *Totta.* Cape. *Shr.*
11. *Argentea.* Cape. 14. *Erecta.* Cape.
15. *Comosa.* Virginia.
16. *Umbellata.* Pennsylvania. *Peren.*
17. *Sericea.* Guinea. *Shrub.*
18. *Tenuiflora.* Pondicherry in the E. Ind. *Shr.*
19. *Parviflora.* E. Ind. 20. *Debilis.* Do. *Bien.*
21. *Hedysaroides.* Guinea. *Shrub.*
22. *Phaseoloides.* Jamaica and Hispaniola. *Shr.*
23. *Lucida.* Society Isles.
24. *Labialis.* East Indies. *Shrub.*
25. *Tomentosa.* North America. *Peren.*
26. *Reticulata.* Jamaica. *Shrub.*
27. *Mollis.* Guinea?
28. *Picta.* Guiana and Trinidad. *Shrub.*
29. *Cana.* East Indies. *Shrub.*
30. *Suaveolens.* Among rocks near Madras. *Shr.*
31. *Striata.* Tropical America.
32. *Caribæa.* Caribbees. *Shrub.*
33. *Bituminosa.* Cape. *Per.* 34. *Secunda.* Do.
35. *Rosea.* Society Isles.
36. *Rubicunda.* New Holland. *Shrub.*
37. *Coccinea.* New Holland. *Shrub.*
38. *Rhombifolia.* East Indies.
39. *Punctata.* Island of St Dominica.
40. *Nummularia.* East Indies.
41. *Floribunda.* Japan. *Shrub.*
42. *Apios.* Virginia. *Peren.*
43. *Frutescens.* Carolina. *Shrub.*
44. *Binaculata.* New Holland. *Shrub.*
45. *Lignosa.* St Domingo. (*Turpin.*)

1352. CLITORIA. *Cor.* supinata: vexillo maximo patente alas obumbrante.

1. *Ternatea.* East Indies. *Peren.*
2. *Multiflora.* St Domingo. *Shrub.*
3. *Brasiliana.* Brasil.
4. *Virginiana.* Virginia and Jamaica. *Peren.*
5. *Mariana.* North America.
6. *Galactia.* Jamaica.
* 7. *Heterophylla.* East Indies.
* 8. *Plumieri.* St Domingo.
* 9. *Rubiginosa.* Do. * 10 *Fulcata.* Do.
11. *Capitata.* Antilles. (*Richard.*)

1354. ROBINIA. *Cal.* 4-fid. lacinia superiore 2-part. *Legum.* gibbum elongatum.

1. *Pseudacacia.* North America. *Shrub.*
2. *Viscosa.* Carolina at the R. Savannah. *Shr.*
3. *Violacea.* Carthagena. *Shrub.*
4. *Striata.* Hills of the Caraccas. *Shrub.*
5. *Hispida.* Flor. Carol. Virgin. Pennsyl. *Shr.*
6. *Sepium.* Carthagena and Hispaniola. *Shrub.*
7. *Squamata.* Island of St Thomas. *Shrub.*
8. *Uliginosa.* East Indies. *Shrub.*
9. *Scandens.* Woods of Guiana. *Shrub.*
10. *Tomentosa.* Woods of Cayenne and Gui. *Shr.*
11. *Florida.* Isle of St John in America. *Shrub.*
12. *Caragana.* Siberia. *Shrub.*
13. *Altagana.* Sandy parts of Dauria. *Shrub.*
14. *Jubata.* At the Lake Baikal. *Shrub.*
15. *Tragacanthoides.* Siberia beyond the Baikal. *Shrub.*
16. *Spinosa.* Mountains of Siberia. *Shrub.*
17. *Halodendron.* Siberia at the river Irtis. *Shr.*
18. *Chamlagu.* China. *Shrub.*
19. *Frutescens.* Siberia and Tartary. *Shrub.*
20. *Pygmæa.* Siberia. *Shrub.*
* 21. *Pendula.* Peru. *Shrub.* (Ortega, *Dec.*)
* 22. *Latifolia.* S. America. *Shr.*
* 23. *Sericea.* America. *Shrub.* Poir. *Encyc.*
* 24. *Rubiginosa.* Trinidad. *Bot.* vi. 224.
* 25. *Glyciphylla.* Martinique.
* 26. *Amara.* Cochinchina. (*Loureiro.*)
* 27. *Martinicensis.* Martinique. Poir. *Id.*
* 28. *Flava.* North of China. (*Loureiro.*)
* 29. *Polyantha.* Hispaniola. (*Swartz.*)

Persoon ranks Sp. 11—20, and 27—29, under the subgenus CARAGANA. *Cal.* sub campan. *Stig.* glabrum, truncatum. *Legum.* cylindricum. (*Lamarck.*)

Class XVII, Diadelphia.

1376. INDIGOFERA. *Cal.* patens. *Corollæ* carina utrinque calcari subulato patulo! *Leg.* lineare.

1. *Filifolia.* Cape of Good Hope.
2. *Linifolia.* East Indies. *Ann.*
3. *Simplicifolia.* Sierra Leone. *Ann.*
4. *Sericea.* Cape of Good Hope. *Shrub.*
5. *Oblongifolia.* Arabia Felix. *Shrub.*
6. *Depressa.* *Shr.* 7. *Ovata.* *Shrub.*
8. *Echinata.* Meadows of Tranquebar. *Ann.*
9. *Trifoliata.* India.
10. *Psoraloides.* *Shrub.* 12. *Amœna.* *Shrub.*
11. *Candicans.* *Shrub.* 13. *Incana.* *Shrub.*
14. *Cinerea.* East Indies.
15. *Spinosa.* East Indies and Arabia Felix. *Shr.*
16. *Procumbens.* Cape of Good Hope.
17. *Prostrata.* East Indies. *Peren.*
18. *Sarmentosa.* Cape. 19. *Denudata.* Cape. *Shr.*
20. *Erecta.* Cape of Good Hope.
21. *Mexicana.* New Granada. *Shrub.*
22. *Glandulosa.* *Ann.* 26. *Filiformis.*
23. *Trita.* 27. *Digitata.* *Shrub.*
24. *Arcuata.* 28. *Enneaphylla.* *Ann.*
25. *Coriacea.* *Shrub.* 29. *Pentaphylla.*
30. *Semitrijuga.* Arabia. *Shrub.*
31. *Fragrans.* 37. *Lateritia.*
32. *Glabra.* *Shrub.* 38. *Hirsuta.* *Shrub.*
33. *Cytisoides.* *Shrub.* 39. *Spicata.* Arab.
34. *Frutescens.* *Shr.* 40. *Angustifolia.* *Shr.*
35. *Stricta.* *Shrub.* 41. *Capillaris.* *Per.*
36. *Hendecaphylla.* Guinea. *Ann.*
42. *Dendroides.* Guinea. *Ann.*
43. *Australis.* New Holland. *Shrub.*
44. *Punctata.* Cape of Good Hope. *Shrub.*
45. *Viscosa.* East Indies. *Ann.*
46. *Inquinans.* Island of St Dominica. *Ann.*
47. *Anil.* *Shrub.* 48. *Tinctoria.* *Shrub.*
49. *Disperma.* East and West Indies.
50. *Argentea.* Egypt, Arabia, and E. Indies.
51. *Pulchra.* *Shrub.* * 57. *Diphylla.* Senegal.
* 52. *Tetrasperma.* * 58. *Senegalensis.* Do.
* 53. *Paniculata.* * 59. *Hedysaroides.* India
* 54. *Nigricans.* * 60. *Miniata.* Cuba.
* 55. *Microphylla.* Cape. * 61. *Rotundifolia.* China.
* 56. *Lotoides.* Cape. * 62. *Macrostachya.* Do.
* 63. *Bufalina.* Cochinchina. (*Lousiero.*)
* 64. *Compressa.* Madagascar. (Lam. *Encyc.*)
* 65. *Caroliniana.* Carolina and Florida. *Ann.* (*Mich.*)

Sp. 10—12, 25—27, 33—35, 40, 41, from the Cape. Sp. 22—24, 28, from the East Indies; and Sp. 51—54, from Guinea.

1358. CICER. *Cal.* 5-part. longitudine corollæ: la-

ciniis 4 superioribus vexillo incumbentibus. *Legum.* turgidum, 2-sperm.
1. *Arietinum.* Spain, Italy, and the East. *Ann.*
2. *Lens.* Germany, Carniola, Switzerland, and France. *Ann.*

Sp. 2 is given under Ervum by Persoon.

1357. Ervum. *Cal.* 5-part. *Stig.* capitatum undique pilosum.
1. *Tetraspermum.* Europe. *Ann.*
2. *Viciodes.* Hedges of Algiers.
3. *Hirsutum.* Fields of Europe, the East. *Ann.*
* 4. *Tenuissimum.* At the Caspian. *An.* (*Biebers.*)
* 5? *Cochinchinense.* Cochinchina. (*Loureiro.*)

1359. Liparia. *Cal.* 5-fid.: lacinia infima elongata. *Cor.* alæ inferius bilobæ. *Staminis* majoris dentes tres breviores. *Legum.* ovatum.
1. *Sphærica.*
2. *Capitata.*
3. *Tomentosa.*
4. *Vestita.*
5. *Graminifolia.*
6. *Myrtifolia.*
7. *Lævigata.*
8. *Umbellifera.*
9. *Villosa.*
10. *Teres.*
11. *Hirsuta.*
12. *Tecta.*
13. *Sericea.*

All shrubby, and from the Cape.

1330. Achyronia. *Cal.* 5-dent. dente inferiore elongata bifido. *Legum.* compressum polyspermum.
1. *Villosa.* New Holland. *Shrub.*

1360. Cytisus. *Cal.* 2-labiatus: $\frac{2}{3}$. *Legumen* basi attenuatum.
1. *Laburnum.* Switzerland and Savoy. *Shrub.*
2. *Nigricans.* Austria, Hungary, Bohemia, and Germany. *Shrub.*
3. *Foliolosus.* Canary Isles. *Shrub.*
4. *Divaricatus.* Spain, South of France. *Shr.*
5. *Ponticus.* Turkey. *Shrub.*
6. *Sessilifolius.* Italy and Provence. *Shrub.*
7. *Wolgaricus.* Hills near the Wolga. *Shrub.*
8. *Hispidus.* Guinea. *Shrub.*
9. *Sericeus.* Tranquebar. *Shrub.*
10. *Cajan.* Ceylon, Java, America. *Shrub.*
11. *Hirsutus.* Spain and Italy. *Shrub.*
12. *Capitatus.* Austria, Italy, Sicily, and Provence. *Shrub.*
13. *Austriacus.* Siberia, Austria, Italy. *Shr.*
14. *Leucanthus.* Woods of the Bannat. *Shrub.*
15. *Purpureus.* Carniola, Croatia. *Shrub.*
16. *Supinus.* Austria, Hungary, Siberia. *Shr.*
17. *Biflorus.* Hungary.
18. *Triflorus.* Barbary and Spain. *Shrub.*
19. *Proliferus.* Woods of Teneriffe. *Shrub.*
20. *Pauciflorus.* North of Persia. *Shrub.*
21. *Lotoides.* Galatia. *Peren.*
22. *Pygmæus.* Galatia. *Shrub.*
23. *Argenteus.* S. of France and Carniola. *Shr.*
24. *Græcus.* Islands of the Archipelago. *Shr.*

1363. Diphysa. *Cal.* 5-fid. inæqualis. *Legum.* 1-loc. polyspermum compressum utrinque vesica longitudinali maxima cinctum.
1. *Carthagenensis.* Carthagena. *Shrub.*

1377. Galega. *Cal.* dentibus subulatis, subæqualibus. *Legum.* striis obliquis, seminibus interjectis.
1. *Filifolia.* 2. *Pusilla.*
3. *Falcata.*
4. *Filiformis.* America. *Shrub.*
5. *Sericea.* 6. *Totta.*
7. *Longifolia.* Warm parts of America.
8. *Officinalis.* Spain, Italy, Germany, and Africa. *Shrub.*
9. *Orientalis.* East. *Peren.*
10. *Striata.* Cape of Good Hope. *Peren.*
11. *Davurica.* Beside rivers in Dauria. *Peren.*
12. *Cinerea.* Jamaica. *Ann.*
13. *Tomentosa.* Arabia Felix. *Ann.*
14. *Littoralis.* Carthagena. *Peren.*
15. *Toxicaria.* West Indies. *Shrub.*
16. *Virginiana.* Virginia and Canada.
17. *Grandiflora.* *Shrub.* 18. *Stricta.* *Shrub.*
19. *Pallens.* *Shrub.* 20. *Villosa.* East Ind.
21. *Colutea.* East Indies. *Shrub.*
22. *Maxima.* Ceylon. *Shrub.*
23. *Piscatoria.* East Indies, and the Islands of the Pacific. *Shrub.*
24. *Purpurea.* Ceylon. *Shrub.*
25. *Caribæa.* Caribbees. *Shrub.*
26. *Ochroleuca.* *Shrub.*
27. *Cœrulea.* South America. *Shrub*
28. *Tinctoria.* Ceylon. 29. *Linearis.* Guinea.
30. *Domingensis.* St Domingo. *Ann*
31. *Mimosoides.* *Shr.* 32. *Dubia.* *Shrub.*
33. *Capensis.* *Shrub.*
34. *Spinosa.* Coromandel. *Shrub.*
35. *Pinnata.* Cape of Good Hope.
36. *Pumila.* Guinea and Madagascar.
37. *Senticosa.* Ceylon. *Shrub.*
* 38. *Persica.* Persia. } Persoon,
* 39. *Pubescens.* St Domingo. } *Synops.*

Persoon gives only Sp. 8, 9, 25, 38, 39, under this genus. The rest he includes under the new genus Tephrosia. Sp. 1—3, 5, 6, 17—19, from the Cape.

‡ 1384. Lotus. *Legum.* cylindricum, strictum. *Fil.* cuneiformia. *Alæ* sursum longitudinaliter conniventes. *Cal.* tubulosus.
1. *Maritimus.* Coasts of Europe. *Peren.*
2. *Siliquosus.* Meadows in the S. of Eur. *Per.*
3. *Tetragonolobus.* Hills of Sicily. *Ann.*
4. *Conjugatus.* Montpellier. *Ann.*
5. *Biflorus.* Meadows of Algiers. *Peren.*
6. *Tetraphyllus.* Majorca. *Peren.*
7. *Edulis.* Italy, Spain, Sicily, Candia. *Ann.*
8. *Peregrinus.* S. of Europe and Barbary. *Ann.*
9. *Glaucus.* Madeira. *Bien.*
10. *Angustissimus.* South of France. *Ann.*
11. *Gracilis.* Meadows of Hungary. *Ann.*
12. *Diffusus.* S. coasts of England. *Ann.*
13. *Coimbrensis.* Portugal. *Ann.*
14. *Arabicus.* Arabia. *Peren.*
15. *Dioscoridis.* Nice and Candia. *Ann.*
16. *Ornithopodioides.* Wet pts. of Sicily, Spain. *An.*
17. *Jacobæus.* Island of St Jacobs. *Per.*
18. *Persicus.* Persia and East Indies. *Shrub.*
19. *Creticus.* Syria, Candia, and Spain. *Shrub.*
20. *Arboreus.* New Zealand *Shrub.*
21. *Hirsutus.* France, Italy, and the East. *Per.*
22. *Græcus.* Greece, Arabia, and the East. *Per.*
23. *Rectus.* France, Sicily, and Calabria. *Peren.*
24. *Palustris.* Candia.
25. *Parviflorus.* Mt. Atlas near Mayane. *Ann.*
26. *Pedunculatus.* Spain.
27. *Prostratus.* Algiers. *Peren.*
28. *Corniculatus.* Engl. and other pts. of Eur. *Per.*
29. *Cytisoides.* S. coasts of Europe. *Peren.*
30. *Medicaginoides.* Siberia? *Ann.*
* 31. *Anthylloides.* Cape of Good Hope. *Shrub.* (Vent. *Malm.*)
* 32. *Microcarpos.* Beira in Portugal. (*Brotero.*)

*33. *Gebelia.* Near Aleppo. (Vent. *H. Cels.*)
*34. *Lanuginosus.* In the East. (Vent. *Malm.*)
*35. *Subbiflorus.* Spain, Balearic Isles. (*Lagasca.*)
*36. *Suaveolens.* S. of France. } Persoon,
*37. *Hispidus.* S. of France, Corsica. } *Syn.*ii.354.

‡ 1387. Medicago. *Legum.* compressum, cochleatum. *Carina* corollæ a vexillo deflectens.

1. *Arborea.* At road sides Naples. *Shrub.*
2. *Radiata.* Italy. *Ann.*
3. *Circinnata.* Spain and Italy. *Ann.*
4. *Sativa.* England, Spain, and France. *Per.*
5. *Prostrata.* Hungary and Italy. *Peren.*
6. *Falcata.* Engl. and other pts. of Eur. *Peren.*
7. *Glutinosa.* Tauria. *Peren.*
8. *Lupulina.* England and other parts of Europe, and North America. *Bien.*
9. *Obscura.* South of Europe? *Ann.*
10. *Orbicularis.* Fran. Ital. Carniola, Barbary. *An.*
11. *Elegans.* Sicily. *Ann.*
12. *Scutellata.* Engl. S. of France, Barbary. *Ann.*
13. *Helix.* South of Europe. *Ann.*
14. *Tornata.* S. of France, Spain, Barbary. *Ann.*
15. *Turbinata.* S. of France and Italy. *Ann.*
16. *Tuberculata.* S. of Europe. *Ann.*
17. *Aculeata.* *Ann.* 18. *Murex.* *Ann.*
19. *Intertexta.* France, Italy, Spain, Barbary. *An.*
20. *Ciliaris.* South of France. *Ann.*
21. *Carstiensis.* Mountains of Carinthia. *Per.*
22. *Maculata*, or *polymorpha.* England, France, Italy, and Barbary. *Ann.*
23. *Tentaculata.* South of Europe. *Ann.*
24. *Coronata.* South of France. *Ann.*
25. *Apiculata.* South of Europe. *Ann.*
26. *Denticulata.* South of Europe. *Ann.*
27. *Muricata.* England, France, Italy. *Ann.*
28. *Gerardi.* Spain, France, Hungary. *Ann.*
29. *Recta.* Barbary. *Ann.*
30. *Marina.* Spain, S. of France, Italy, Greece, Barbary, and the East. *Peren.*
31. *Terebellum.* South of Europe. *Ann.*
32. *Tribuloides.* South of Europe. *Ann.*
33. *Uncinata.* South of Europe. *Ann.*
34. *Rigidula.* France, Italy, Barbary. *Ann.*
35. *Minima.* England, Germany, Hungary, and France. *Ann.*
36. *Nigra.* South of France. *Ann.*
37. *Laciniata.* Spain, France, Italy, Syria, and Barbary. *Ann.*

*38. *Glomerata.* Mts. of Italy. } *Fl. Franc.* iv.
*39. *Suffruticosa.* Pyrenees. } 540.
*40. *Echinus.* S. of France. (Decand. *Synops.*)
*41? *Mollissima.* Spain, France. *Ann.* (Roth. *Cat.*)

Class XVII. Diadelphia.

1362. Geoffroya. *Cal.* 5-*fid.* *Drupa* ovata. *Nucleus* compressus.

1. *Spinosa.* Brazil. *Shrub.*
2. *Surinamensis.* Surinam. *Shrub.*
3. *Inermis.* Jamaica and Martinique. *Shrub.*

*4. *Pubescens.* Cayenne. (*Richard.*)
*5. *Violacea.* Guiana. (*Aublet.*)

NEW GENERA.

Pentandria.

I. Petalostemon. *Pet.* 4, staminibus interjecta; utraque in tubum fissum connata. *Vexill.* 0, ejus loco quintum petalum. *Legum.* calyce textum, 1-spermum.

1. *Carneum.* Georgia and Florida. (*Mich.*)

This genus also contains Sp. 2—5 of Dalea, p. 279.

Hexandria.

II. Corydalis. *Cal.* 2-phyll. *Cor.* ringens. *Fil.* 2, membranacea, singula anth. 3. *Caps.* siliquosa, polysperma.

1. *Caudata.* Pekin. (Lam. *Encycl.* iii. 569.)

This genus contains also Sp. 1—3, 5—21 and 30, of Fumaria, p. 272.

Octandria.

III. Monina. *Cal.* 3-phyll. deciduus. *Cor.* subpapilionacea. *Anth.* apice dehiscentes, fere ringentes. *Styl.* incurvus. *Drupa* 1-sperma. *Nux* 1-loc. (*Fl. Per. Syst.* p. 171.)

1. *Polystachya.* Hills of Pillao. *Shrub.*
2. *Salicifolia.* Peru. *Shrub.*
3. *Conferta.* Groves of the Andes. *Shrub.*
4. *Linearifolia.* Hills of Chili.
5. *Macrostachya.* Hills of Peru.
6. *Pterocarpa.* Fields of Peru.

IV. Comaspermum. *Cal.* 5-part.: laciniis 2-majoribus. *Cor.* irregularis, labio *sup.* bifido fisso, *inf.* concavo. *Stig.* subbifidum. *Caps.* subspathulata, 2-loc. *Sem.* solitaria capillata. (*Flor.* spicato-racemosi.)

New Genera.

1. *Virgata.* Van Leewen's land. } See Labillard. *Pl. Nov. Holl.* ii. p. 21, t. 159.
2. *Conferta.* Ditto.
3. *Retusa.* Van Diemen's Island.
4. *Calymega.* Ditto.
5. *Volubilis.* Ditto.

Decandria.

V. Machærium. *Cal.* campan. 5-dent. 2-bract. *Cor.* carina bifida. *Legum.* oblongum, cultriforme compressum, evalve. *Sem.* 1 reniforme.

1. *Ferrugineum.* (*Nissolia ferrug.* of Willd.)
2. *Punctatum.* Madagascar. } Poiret, *Enc.* iv.
3. *Reticulatum.* } p. 492.

VI. Pongamia. *Cal.* coloratus, cyathiformis, oblique truncatus, 5-dent. *Pet.* unguiculata. *Vexil.* patens, alæ et carina conniventia. *Leg.* substipitatum, compresso-planum, rostratum, evalve, 1-2-spermum. *Anth.* ciliatæ, apice glandulosæ.

1. *Glabra.* (*Dalbergia arborea* of Willd.)
2. *Grandiflora.* India. } Vent. *Malm.* p. 28.
3. *Sericea.* Java. }

VII. Ecastaphyllum. *Cal.* campan. subbilabiatus: lacin. sup. emarginata, inf. 3-fida. *Fil.* æqualiter diadelpha. *Leg.* suborbiculare, evalve, 1-spermum. (*Frutices* scandentes. *Flor.* axillares, fasciculati.) *Richard.*

1. *Brownei.* (*Pterocarpus ecastophyllum* of Wil.)
2. *Plumieri.* South America.
3. *Richardi.* Guiana. (*Herb.* of Rich.)

VIII. Deguelia. *Cal.* brevis, urceolatus, 2 lab. *Alæ* et carina 2-pet. subæquales. *Vexil.* majus, Class XVII Diadelphia.

REMARKS ON THE CLASS DIADELPHIA.

Several leguminous genera, which are given under Decandria *Monogynia*, might be expected in this class.

CLASS XVIII. POLYADELPHIA.

Class XVIII. Polyadelphia.

Decandria.

1388. Theobroma. *Cal.* 5-phyll. *Pet.* 5, fornicata. *Nect.* urceolatum exserens 5 cornicula. *Fil.* 5, quolibet antheris 2 instructum. *Styl.* filiformis. *Stig.* 5-part. *Caps.* 5-loc. evalvis. *Sem.* in pulpa butyracea nidulantia.
- 1. *Cacao.* S. America and the Antilles. *Shr.*
- 2. *Gujanensis,* Woods of Guiana. *Shrub.*
- * 3. *Bicolor.* New Granada, Province of Chaco. (Humboldt, *Pl. Equinoct.*)

Dodecandria.

1389. Bubroma, or Guazuma. *Cal.* 3-phyll. *Cor.* 5-pet. petalis bicornibus. *Nect.* campan. 5-fid. *Fil.* 5 nectario externe adnata, quodlibet antheris 3 instructum. *Styl.* simpl. *Caps.* lignosa tuberculata evalvis decuplici serie foraminulorum pertusa.
- 1. *Guazuma.* Jamaica. *Shrub.*

1390. Abroma. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* urceolatum 5-fid. *Fil.* 5 inter lacinias nectarii inserta, quodlibet antheris 3 instructum. *Styli* 5 subulati. *Caps.* membranacea 5-alata, 5-loc. *Sem.* alata.
- 1. *Angusta.* East Indies. *Shrub.*
- 2. *Wheleri.* East Indies. *Shrub.*

Icosandria.

1391. Citrus. *Cal.* 5 fid. *Pet.* 5, oblonga. *Anth.* 20, fil. connatis in varia corpora. *Bac.* 9-loc.
- 1. *Medica.* Asia Minor and Persia. *Shrub.*
- 2. *Angulata.* Amboyna. *Shrub.*
- 3. *Japonica. Shr.* 6. *Trifoliata. Shr.*
- 4. *Aurantium. Shr.* *7. *Sinensis.*
- 5. *Decumana. Shr.* *8. *Buxifolia.*

Sp. 3, 6 from Japan; 4, 5 from India; 7, 8 from China.

1392. Melaleuca. *Cal.* 5-part. semisuperus. *Cor.* 5-pet. *Fil.* multa, connata in 5 corpora. *Styl.* 1. *Caps.* semivestita, 3-loc.
- 1. *Leucadendron.* East Indies.
- 2. *Viridiflora.* N. Holl. and N. Caledonia.
- 3. *Laurina.* 8. *Armillaris.*
- 4. *Squarrosa.* 9. *Genistifolia.*
- 5. *Stypheloides.* 10. *Linariifolia.*
- 6. *Ericifolia.* 11. *Thymifolia.*
- 7. *Nodosa.* 12. *Hypericifolia.*

All shrubby, and Sp. 3—12 from New Holland.

Polyandria.

1394. Luhea. *Cal.* dup. ext. 9-phyll. int. 5-part. *Cor.* 5-pet. *Nect.* 5 penicilliformia. *Styl.* 1.
- 1. *Speciosa.* Highest mts. of the Caraccas. *Shr.*

1395. Durio. *Cal.* 5-fid. urceolatus, inferus. *Cor.* 5-pet. parva. *Styl.* 1. *Stam.* phalanges 5 ex septem. *Pomum* 5-loc.
- 1. *Zibethinus.* East Indies. *Shrub.*

1393. Glabraria, or Litsæa. *Cal.* 5-fid. *Pet.* 5. *Nect.* receptaculi setis longitudine calycis. *Stam.* 30: senis semper connexis. *Drupa.*
- 1. *Tersa.* East Indies. *Shrub.*

Given under Litsæa by Persoon.

1396. Symplocos. *Cal.* 5-fid. superus. *Cor.* 5-8-pet. basi in tubum cohærentibus. *Stam.* 4-plici serie tubo corollæ accreta. *Drupa* sicca, 5-loc.
- 1. *Martinicensis.* Antilles.
- 2. *Ciponima.* Groves of Guiana.
- 3. *Arechea.* Woods of Peru.
- 4. *Octopetala.* Jamaica.
- 5. *Tinctoria.* Carolina. (The *Hopæa tinct.* of Linn. and Persoon.)
- 6. *Alstonia.* Cold mountains of South America at Bogota.
- * 7. *Coccinea.* Woods of Mexico near Xalapa.
- * 8. *Cernua.* Woods of Peru near Jaen.
- * 9. *Serrulata.* Woods near Popayan.
- * 10. *Rufescens.* Mount Quindiu South America.
- * 11. *Tomentosa.* Near Ybague New Granada.
- * 12. *Nuda.* Woods of Loxa.
- * 13. *Limoncillo.* Mexico near Xalapa.
- * 14. *Mucronata.* New Granada.

All shrubby. For Sp. 6—14 see Humboldt, *Plantæ Equinoctiales.*

‡ 1397. Hypericum. *Cal.* 5-part. *Pet.* 5. *Fil.* multa, in 5 phalanges basi connata. *Capsula.*
- 1. *Balearicum.* Majorca. *Shrub.*
- 2. *Brathys.* New Granada. *Shrub.*
- 3. *Angustifolium.* Bourbon. *Shrub.*
- 4. *Lanceolatum.* Bourbon. *Shrub.*
- 5. *Kalmianum.* Virginia. *Shrub.*
- 6. *Cajennense.* Guiana and Cayenne. *Shrub.*
- 7. *Laurifolium.* New Granada. *Shrub.*
- 8. *Bacciferum.* Guiana and Mexico. *Shrub.*
- 9. *Latifolium.* Guiana. *Shrub.*
- 10. *Sessilifolium.* Guiana. *Shrub.*
- 11. *Monogynum.* China, Japan, and E. Indies. *Shr.*
- 12. *Patulum.* Japan. *Shrub.*
- 13. *Calycinum.* Greece. *Shrub.*
- 14. *Ascyroides.* Pennsylvania. *Peren.*
- 15. *Ascyron.* Siberia and Pyrenees. *Peren.*
- 16. *Pyramidatum.* North America? *Peren.*
- 17. *Alternifolium.* East Indies. *Shrub.*
- 18. *Guineense.* Guinea. *Shrub.*
- 19. *Richeri.* Mountains of Dauphiny. *Peren.*
- 20. *Androsæmum.* Engl. S. of Fran. and Italy. *Shr.*
- 21. *Emarginatum.* *Shrub.*
- 22. *Olympicum.* Pyrenees on Mt. Olympus. *Shr.*
- 23. *Petiolatum.* Brazil. *Shrub.*
- 24. *Arborescens.* East Indies. *Shrub.*
- 25. *Foliosum.* Azores islands. *Shrub.*
- 26. *Floribundum.* Madeira. *Shrub.*
- 27. *Canariense.* Canary Isles. *Shrub.*

Class XVIII. Polyadelphia.

28. *Elatum.* North America. *Shrub.*
29. *Hircinum.* Sicily, Calabria, and Candia. *Shr.*
30. *Inodorum.* Cappadocia. *Shrub.*
31. *Chinense.* China. *Shrub.*
32. *Procumbens.* North America. *Peren.*
33. *Scabrum.* Arabia and Barbary. *Shrub.*
34. *Rosmarinifolium.* Carolina. *Shrub.*
35. *Aspalathoides.* Carolina. *Shrub.*
36. *Nitidum.* *Shr.* 37. *Galioides.* S. Carol. *Shr.*
38. *Empetrifolium.* In the East. *Shrub.*
39. *Fasciculatum.* North America. *Shrub.*
40. *Repens.* Barbary and the East. *Peren.*
41. *Prolificum.* North America. *Shrub.*
42. *Revolutum.* Arabia Felix. *Shrub.*
43. *Angulosum.* Marshes of Carolina.
44. *Gramineum.* New Caledonia.
45. *Japonicum.* Japan.
46. *Canadense.* Canada. *Ann.*
47. *Virginicum.* Pennsylvania. *Peren.*
48. *Nudiflorum.* North America. *Peren.*
49. *Parviflorum.* Pennsylvania and Carolina.
50. *Corymbosum.* Pennsylvania. *Peren.*
51. *Erectum.* Mountains of Japan.
52. *Connatum.* Monte Video. *Shrub.*
53. *Æthiopicum.* Cape of Good Hope.
54. *Reflexum.* Teneriffe. *Shrub.*
55. *Mexicanum.* New Granada. *Peren.*
56. *Caracasanum.* Caraccas. *Shrub.*
57. *Articulatum.* Madagascar. *Shrub.*
58. *Quadrangulare.* Engl. & other pts. of Eur. *Per.*
59. *Dubium.* England, Germany, and Italy. *Per.*
60. *Perforatum.* Engl. and other pts. of Eur. *Per.*
61. *Afrum.* Wet parts of Barbary. *Shrub.*
62. *Humifusum.* Engl. France, Germ. Switz. *Per.*
63. *Dichotomum.* Island of St Dominica. *Shr.*
64. *Crispum.* Calabria, Sicily, Greece, Barb. *Per.*
65. *Perfoliatum.* *Peren.*
66. *Barbatum.* Austria. *Peren.*
67. *Ciliatum.* In the East. *Peren.*
68. *Montanum.* Engl. and other parts of Eur. *Per.*
69. *Punctatum.* Galatia. *Peren.*
70. *Glandulosum.* Madeira. *Shrub.*
71. *Hirsutum.* Engl. and other parts of Eur. *Per.*
72. *Elodes.* Do. and Siberia. *Peren.*
73. *Tomentosum.* S. of France and Spain. *Peren.*
74. *Lanuginosum.* In the East. *Peren.*
75. *Origanifolium.* Armenia. *Peren.*
76. *Orientale.* In the East. *Peren.*
77. *Ægypticum.* Egypt. *Shrub.*
78. *Pulchrum.* England, Germany, France. *Per.*
79. *Serpyllifolium.* In the East. *Shrub.*
80. *Nummularium.* In the Pyrenees. *Peren.*
81. *Elegans.* Siberia. *Peren.*
82. *Linearifolium.* In Navarre and Bayonne.
83. *Hyssopifolium.* Spain. *Peren.*
84. *Ericoides.* Spain and Portugal. *Peren.*
85. *Coris.* S. of Europe and in the East. *Shr.*
86. *Mutilum.* Virginia and Canada.
87. *Setosum.* Virginia.
88. *Verticillatum.* Cape of Good Hope.
* 89. *Macrocarpum.* Canada. } *Mich.* ii.
* 90. *Maculatum.* Virgin. and Carol. } p. 80, 82.
* 91. *Axillare.* * 95. *Silenoides.*
* 92. *Virgatum.* * 96. *Laricifolium.* Peru.
* 93. *Cistifolium.* * 97. *Struthiæfolium.* Peru.
* 94. *Punctatum.* (Not Sp. 69.)
* 98. *Triplinerve.* N. America. } Vent. *H. Cels.*
* 99. *Heterophyllum.* Persia. } p. 45.
* 100. *Dolabriforme.* Kentucky. }

Sp. 90—96, see Lamarck, *Enc.* iv. p. 161, and Jussieu, *Ann. Mus.* cap. xiv. p. 160.

1398. Ascyrum. *Cal.* 4-phyll. *Pet.* 4. *Fil.* multa, in 4 phalanges digesta.

1. *Crux Andreæ.* Virginia.
2. *Multicaule.* North America. *Peren.*
3. *Hypericoides.* Virginia and Jamaica. *Shrub.*
4. *Stans.* North America. *Shrub.*
5. *Villosum.* Virginia. *Shrub.*
* 6. *Amplexicaule.* Florida. } *Mich.* i. p. 77.
* 7. *Pumilum.* Georgia. }

NEW GENERA.

Polyandria.

New Genera.

I. Vismia. *Cal.* 5-part. *Cor.* 5-pet. hirsuta. *Nect.* glandulis 5. *Stam.* in 5 corpora digesta (pilosa.) *Stig.* peltata. *Bac.* 5-loc. polysperma.

1. *Rufescens.* Cayenne and Guiana. } Lamarck,
2. *Acuminata.* Guiana. } *Enc.* iv.
3. *Tomentosa.* Groves of Peru. } *Flor. Per.*
4. *Glabra.* Andes. } *Syst.* 183

This genus also contains Sp. 6, 7, 8, 10 of Hypericum.

II. Palava. *Cal.* 5-phyll.: foliol. margine membranaceis. *Pet.* 5, unguib. ciliata, cui *Stam.* in 5 congeries, inserta. *Anth.* incumbentes, basi biperforatæ. *Stig.* reniformia. *Caps.* subglobosa, 5-loc. *Sem.* 4-gona. *Recept.* subrotunda, carnosa. (*Cor.* albæ, rotatæ, deciduæ.) (*Fl. Per.* 181.)

1. *Lanceolata.* Groves of Peru.
2. *Biserrata.* Do. 3. *Glabra.* Do.

REMARKS ON THE CLASS POLYADELPHIA.

Persoon has abolished this class. He ranks under Dodecandria the genus Glabrasia; under Icosandria the genus Melaleuca; and under Polyandria the genera Citrus, Durio Symplocos, Hypericum, Ascyrum, Vismia, and Palava.

[illegible]

1. [illegible]
2. [illegible] Per.
3. [illegible] Per.
4. [illegible] Peren.
5. [illegible] Per.
6. [illegible] Peren.
7. [illegible] Per.
8. [illegible] Peren.
9. [illegible] Peren.
10. [illegible] Peren.
11. *Pusilla.* [illegible] Peren.
12. [illegible] Carniola. *Peren.*
13. *Purpurea.* [illegible] *Peren.*
14. *Angustifolia.* [illegible] Montpellier. [illegible] *Per.*
15. [illegible] Spain and France. *Peren.*
16. [illegible] the East. *Peren.*
17. *Villosa.* [illegible]
18. [illegible] the Caspian Sea. *Peren.*
19. *Cretica.* Candia. *Peren.*
20. *Crocea.* Cape of Good Hope.
21. *Chondrilloides.* Spain.
22. [illegible] Spain, Montpel. the East. *Per.*
23. [illegible] N. of Africa, the East. *Per.*
24. *Laciniata.* Germany and France. *Bien.*
25. [illegible] South of Europe. *Bien.*
26. *Pumila.* Spain. *Ann.*
27. *Coronopifolia.* Mountains of Barbary. *Per.*
28. *Orientalis.* 29. *Asperrima.* Galicia.
30. *Taraxacifolia.* Bohemia. *Peren.*
31. [illegible] Silesia. *Bien.*
32. *Elongata.* Coasts of Greece.
* 33. *Aristata.* Pyrenees. } Decand. *Synop.* Pl.
* 34. *Muricata.* Piedmont. } Gall.
* 35. *Fistulosa.* Portugal. (*Brotero*, i. 329.)
* 36. *Stylosa.* (Persoon. *Synop.* ii. p. 361.)
* 37. *Pinnatifida.* Carolina. (*Mich.* ii. p. 89.)
* 38. *Aspera.* In the East. (Desf. *Ann. Mus.*)

‡ 1407. Leontodon. *Recept.* nudum. *Cal.* duplex. *Papp.* stipitatus pilosus.
1. *Taraxacum.* Britain, &c. N. Amer. *Peren.*
2. *Serotinus.* Hungary and Tauria. *Per.*
3. *Lividus*, or *palustre* of Smith. Britain and other parts of Europe. *Peren.*
4. *Lævigatus.* Spain. *Peren.*
5. *Obovatus.* Spain. *Peren.*
* 6? *Sinense.* China. (*Loureiro.*)

‡ 1412. Crepis. *Recept.* nudum. *Cal.* calyculatus squamis deciduis. *Papp.* pilosus, substipitatus.
1. *Bursifolia.* Sicily. *Peren.*
2. *Nemausensis.* France, Italy, Palestine. *Ann.*
3. *Leontodontoides.* Woods of Piedmont. *Bien.*
4. *Taraxacifolia.* Fields of Barbary. *Bien.*
5. *Apargioides.* Aust. Salzburg, Bavaria. *Per.*
6. *Vesicaria.* Candia. *Peren.*
7. *Scariosa.* Italy. *Ann.*
8. *Taurinensis*, or *præcox.* Europe. *Ann.*
9. *Alpina.* Mts. of Italy and Siberia. *Ann.*
10. *Albida.* Italy, France, and Spain. *Peren.*
11. *Rigida.* Hungary and Tauria. *Peren.*
12. *Rigens.* The Azores. *Peren.*
13. [illegible] Italy. *Ann.*
14. [illegible] Brit. and other pts. of Eur. *Ann.*
15. [illegible] Portugal and Italy. *Ann.*
16. [illegible] The East, Sicily, Palestine. *Ann.*
17. [illegible] *Ann.*
18. [illegible] *Ann.*
19. *Virgata.* Sandy parts of Barbary. *Ann.*
20. *Hieracioides.* Hungary. *Peren.*
21. [illegible] Hungary, Croatia, Sclavon. *Ann.*
22. *Tectorum.* Engl. and other pts. of Eur. *Ann.*
23. *Agrestis.* Hungary. *Ann.*
24. *Biennis.* Engl. and other pts. of Eur. *Bien.*
25. [illegible] France.
26. [illegible] Germany and Italy. *Ann.*
27. [illegible] France and Switzerland. *Ann.*
28. *Dioscoridis.* Fra. Siber. the Palatinate. *Ann.*
29. *Macrophylla.* Algiers.
30. *Coronopifolia.* Canary Islands. *Ann.*
31. *Tenuifolia.* Tauria. *Per?*
32. *Filiformis.* Madeira. *Bien.*
* 33. *Setosa.* Rhætian Alps. } Persoon, *Synop.* ii.
* 34. *Pungens.* } p. 376.
* 35. *Nicæensis.* Near Nice. (*Balbis.*)
* 36. *Parviflora.* In the East. *Ann.* (Desf. *Cat.*)
* 37. *Latifolia.* Turin. (Balbis in Pers. *Syn.*)

‡ 1405. Chondrilla. *Recept.* nudum. *Cal.* calyculatus. *Papp.* simpl. stipitatus. *Flosculi* multiplici serie. *Sem.* muricata.
1. *Juncea.* Germ. Switz. and France. *Peren.*
2. *Crepoides.* 3. *Nudicaulis.* Egypt. *An.*

‡ 1406. Prenanthes. *Recept.* nudum. *Cal.* calyculatus. *Papp.* simpl. subsessilis. *Flosculi* simplici serie.
1. *Tenuifolia.* South of Europe. *Peren.*
2. *Hispida.* Siberia.
3. *Chinensis.* China and Japan.
4. *Virgata.* North America.
5. *Purpurea.* Germ. Switz. and Italy. *Per.*
6. *Javanica.* Java.
7. *Lanceolata.* Japan. *Ann.*
8. *Debilis.* Japan. *Ann.* 9. *Dentata.* Japan.
10. *Rhombifolia.* Caraccas.
11. *Hastata.* Japan.
12. *Alba.* Carolina, Virginia, Pennsylv. *Per.*
13. *Rubicunda.* Pennsylvania and Virginia. *Per.*
14. *Repens.* East of Siberia. *Peren.*
15. *Altissima.* Virginia, Pennsyl. Canada. *Per.*
16. *Chondrilloides.* S. of Eur. and Arabia. *Per.*
17. *Spinosa.* Spain, Barbary, and Arabia. *Shr.*
18. *Ramosissima.* Near Nice. *Bien. Ann.*
19. *Viminea.* Austria, France, Portugal. *Bien.*
20. *Aspera.* 21. *Pinnata.* Teneriffe. *Shr.*
22. *Sarmentosa.* East Indies.
23. *Asplenifolia.* Do. 24. *Sonchifolia.* Do. *An.*
25. *Hieracifolia.* France and Italy. *Ann.*
26. *Squarrosa.* Japan.
27. *Multiflora.* Japan. *Ann.*
28. *Acanthifolia.* Candia. *Peren.*
29. *Erysanifolia.* Pontus.
30. *Muralis.* Engl. and other pts. of Eur. *Ann.*
31. *Japonica.* Japan. 32. *Humilis.* Do. *An.*
33. *Lyrata.* Japan. *Ann.*
* 34. *Illinoensis.* Illinois. } Mich. *Fl.*
* 35. *Racemosa.* New Canada. } *Amer.* p.
* 36. *Crepidinea.* Illinois, Carolina. } 83, &c.

‡ 1404. Lactuca. *Recept.* nudum. *Cal.* imbricatus, cylindricus, margine membranaceo. *Papp.* simpl. stipitatus. *Sem.* lævia.
1. *Sativa.* *Ann.* 2. *Crispa.* *Ann.*
3. [illegible] *Ann.*
4. *Intybacea.* South America. *Ann.*
5. [illegible] Armenia.
6. *Quercina.* Carolina and Germany. *Peren.*
7. [illegible]

8. *Chaixi.* Dauphiny. *Ann.*
9. *Elongata.* Pennsylvania.
10. *Capensis.* Cape of Good Hope.
11. *Scariola.* Eng. and other pts. of Eur. *Ann.*
12. *Virosa.* Engl. and other pts. of Eur. *Ann.*
13. *Angustana.* Piedmont. *Ann.*
14. *Sagittata.* Woods of Hungary. *Bien.*
15. *Saligna.* France, Austria, Germany. *Ann.*
16. *Tuberosa.* *Peren.* 17. *Indica.* Java.
18. *Segusiana.* Fields of Piedmont. *Ann.*
19. *Tenerrima.* Spain. *Peren.*
20. *Perennis.* Germany, Switz. France. *Per.*
21. *Sonchifolia.* Candia and Tartary. *Peren.*
* 22. *Longifolia.* Upper Carolina. } *Mich.* ii.
* 23. *Graminifolia.* Lower Carolina. } p. 85.

‡ 1411. HIERACIUM. *Recept.* nudum. *Cal.* imbricatus, ovatus. *Papp.* simpl. sessilis.

1. *Aureum.* Switz. Austr. Italy, France. *Per.*
2. *Rupestre.* Piedm. Switz. Salzburg. *Per.*
3. *Pinnatifidum.* Armenia. *Peren.*
4. *Purpureum.* Tauria. *Peren.*
5. *Alpestre.* Austr. Germ. and Switz. *Peren.*
6. *Alpinum.* Brit. Lapl. Austr. Switz. *Per.*
7. *Pumilum.* Mts. of Salzburg. *Peren.*
8. *Glabratum.* Mts. of Salzburg. *Peren.*
9. *Bulbosum.* Montpellier, Italy, Barb. *Per.*
10. *Pilosella.* Brit. and other pts. of Eur. *Per.*
11. *Dubium.* Engl. and other pts. of Eur. *Per.*
12. *Auricula.* Engl. and other pts. of Eur. *Per.*
13. *Repens.* *Peren.*
14. *Angustifolium.* Austria and France. *Peren.*
15. *Florentinum.* Germ. France, Italy. *Peren.*
16. *Cymosum.* Denm. Germ. and Switz. *Per.*
17. *Staticifolium.* Switzerland, Savoy, Germany, Italy, and Dauphiny. *Peren.*
18. *Præmorsum.* Switz. and Germany. *Peren.*
19. *Integrifolium.* Bavar. Salz. and Switz. *Per.*
20. *Incarnatum.* Carinthia and Carniola. *Shr.*
21. *Aurantiacum.* France, Italy, Switzerland, Styria, and Austria. *Shrub.*
22. *Lawsonii.* On walls in Dauphiny. *Peren.*
23. *Laniferum.* Mountains of Valentia. *Per.*
24. *Venosum.* North America. *Peren.*
25. *Gronovii.* Virginia and Pennsylvania. *Per.*
26. *Croceum.* Siberia. *Peren.*
27 *Gmelini.* Siberia. *Peren.*
28. *Capense.* Cape of Good Hope.
29. *Paniculatum.* Canada, Pennsylvania.
30. *Marianum.* North America. *Peren.*
31. *Chondrilloides.* Lower Austria. *Peren.*
32. *Humile.* Austria, France, Italy, Switz. *Per.*
33. *Nigrescens.* *Peren.*
34. *Prunellæfolium.* Switz. Savoy, Italy, Fran. *Per.*
35. *Fœtidum.* Armenia. *Peren.*
36. *Montanum.* Austria, Savoy, Switz. Fran. *Per.*
37. *Porrifolium.* Aust. Fran. and the Vallais. *Per.*
38. *Saxatile.* Austria and Hungary. *Peren.*
39. *Glaucum.* Italy and France. *Peren.*
40. *Molle.* Austria, Switz. and Scotland. *Peren.*
41. *Murorum.* England and other parts of Eur.
42. *Sylvaticum.* Engl. France, and Italy. *Peren.*
43. *Ramosum..* Hungary. *Peren.*
44. *Paludosum.* Engl. and other pts. of Eur. *Per.*
45. *Lapsanoides.* Pyrenees. *Peren.*
46. *Lyratum.* Siberia.
47. *Cerinthoides.* Pyrenees. *Peren.*
48. *Flexuosum.* Mts. of Croatia, Piedmont. *Per.*
49. *Croaticum.* Mountains of Croatia. *Peren.*
50. *Amplexicaule.* Pyrenees. *Peren.*
51. *Pyrenaicum.* Mountains of Austria, Salzburg, Switzerland, France. *Peren.*
52. *Sibiricum.* Mountains in Siberia. *Peren.*
53. *Grandiflorum.* Switz. France, and Hung. *Per.*
54. *Intybaceum.* France, Switz. and Germ. *Per.*
55. *Ciliatum.* Candia.
56. *Villosum.* Brit. Bohemia, Switz. Montp. *Per.*
57. *Lanatum.* Mountains of Croatia. *Peren.*
58. *Halleri.* Dauphiny, Switz. and Silesia. *Per.*
59. *Echioides.* Hungary and Prussia. *Peren.*
60. *Undulatum.* Spain. *Peren.*
61. *Glutinosum.* Narbonne. *Ann.*
62. *Kalmii.* Pennsylvania.
63. *Racemosum.* Hungary. *Peren.*
64. *Foliosum.* Hungary. *Peren.*
65. *Sabaudum.* Engl. and other parts of Eur. *Per.*
66. *Prenanthoides.* Scotl. Fran. Switz. Italy. *Per.*
67. *Lævigatum.* *Peren.*
68. *Lanceolatum.* Woods of Dauphiny. *Peren.*
69. *Fruticosum.* Madeira. *Shrub.*
70. *Umbellatum.* Engl. and other pts. of Eur. *Per.*
* 71. *Hyosiridifolium.* Mt. Mesmer at St Gall. (*Vill.*)
* 72. *Schraderi.* Savoy. } Decand. *Synop.*
* 73. *Eriophorum.* France. } p. 258.
* 74. *Andryaloides.* France and Italy. (*Villars.*)
* 75. *Canadense.* Canada. } *Mich.* ii.
* 76? *Scabrum.* Canada and Carolina. } p. 86.
* 77. *Corymbosum.* (Persoon, *Synop.* ii. p. 374.)
* 78. *Ambiguum.* Alps. (*Do.*)
* 79? *Intermedium.* Bavaria. (Decand. *Pl.*)
* 80. *Molle.* Scotland and Austria. (*Smith*, ii. 832.)

‡ 1408. SONCHUS. *Recept.* nudum. *Cal.* imbricatus, ventricosus. *Papp.* pilosus sessilis.

1. *Maritimus.* Europe and N. of Africa. *Per.*
2. *Crassifolius.* Spain. *Peren.*
3. *Quercifolius.* Barbary on mts. of Cafsa. *Shr.*
4. *Fruticosum.* Rocks of Madeira. *Shrub.*
5. *Acidus.* Morocco. *Shrub.*
6. *Pinnatus.* Madeira. *Shrub.*
7. *Radicatus.* Madeira. *Shrub.*
8. *Taraxifolius.* Guinea.
9. *Palustris.* Engl. Germ. Fran. Hungary. *Per.*
10. *Arvensis.* Engl. and other parts of Eur. *Per.*
11. *Agrestis.* Jamaica. *Ann.*
12. *Lacerus.* *Ann.*
13. *Angustifolius.* Barbary near Cafsa. *Per.*
14. *Umbellifer.* Cape. 15. *Glaber.* Do.
16. *Goræensis.* Isle of Goree in Africa. *Ann.*
17. *Oleraceus.* Fields of Europe. *Ann.*
18. *Tenerrimus.* Montp. Florence, Barbary. *Ann.*
19. *Chondrilloides.* Barbary and Sicily. *Peren.*
20. *Hispanicus.* At Malaga in Spain. *Ann.*
21. *Tingitanus.* Coast of Barbary. *Ann.*
22. *Picroides.* France and Barbary. *Ann.*
23. *Dichotomus.* Arabia Felix and Tunis.
24. *Plumieri.* Pyrenees. *Peren.*
25. *Macrophyllus*, or *Canadensis.* N. Amer. *Per.*
26. *Alpinus*, or *Cœrulæus.* Eur. and Canada. *Per.*
27. *Lapponicus.* Mountains of Lapland. *Bien.*
28. *Leucophæus.* North America. *Bien.*
29. *Floridanus.* Virginia and Canada. *Bien.*
30. *Acuminatus.* North America.
31. *Pallidus.* Canada.
32. *Sibiricus.* Siberia, Sweden, and Finland. *Per.*
33. *Tartaricus.* Tartary and Siberia. *Peren.*
* 34. *Cordifolia.* (Persoon, *Synop.* ii. p. 364.)

1423. ZACINTHA. *Recept.* nudum. *Sem.* radii incurva, disci recta. *Papp.* brevissimus subplumosus. *Cal.* calyculatus, calyculo membranaceo.

1. *Verrucosa.* Italy and the East. *Ann.*

‡ 1422. **Lapsana.** *Recept.* nudum. *Cal.* subcalyculatus, squamis singulis interioribus canaliculatis. *Papp.* 0.

1. *Fœtida.* Italy, Switz. Salzb. Aust. Hung. *Per.*
2. *Pusilla.* Europe. *Ann.*
3. *Virgata.* Barbary near La Calle. *Peren.*
4. *Communis.* Engl. and other pts. of Eur. *Ann.*
5. *Crispa.* *Ann.*

1424. **Rhagadiolus.** *Recept.* nudum. *Sem.* arcuata patentia. *Papp.* 0. *Cal.* calyculatus.

1. *Stellatus.* Montpellier and Bologna. *Ann.*
2. *Edulis.* In the East and Carniola. *Ann.*
3. *Koelpinia.* Peru and Dauria. *Ann.*

1419. **Krigia.** *Recept.* nudum. *Cal.* polyphyll. simpl. *Papp.* membranaceus 5-phyll. cum setis 5 intermixtis alternis.

1. *Virginica.* Virginia and Pennsylvania. *Ann.*

Given by Persoon under Hyoseris.

‡ 1117. **Hyoseris.** *Recept.* nudum. *Cal.* calycul. *Papp.* dupl. ext. capillaceus; int. paleaceo-aristatus.

1. *Radiata.* Spain, France, and Barbary. *Per.*
2. *Lucida.* In the East. *Shrub.*
3. *Scabra.* Sicily, Barbary. *Ann.*
4. *Hispida.* Morocco. *Ann. Peren.*
5. *Pygmæa.* Madeira. *Ann.* 6. *Hirta.*
7. *Arenaria.* Mogodore in Morocco. *Ann.*
8. *Prenanthoides.* North America.

* 9. *Minima.* England, &c. *Ann.* (*Smith.*) (*Lapsana Fœtida* of Willd.)
* 10. *Angustifolia.* * 12. *Amplexicaulis.*
* 11. *Major.* * 13. *Montana.*

Sp. 10—13 from Carolina, see *Michaux.*

1418. **Hedypnois.** *Recept.* nudum. *Cal.* calycul. *Papp.* disci dupl. ext. obsoleto multiseto; int. paleaceo 5 phyllo; radii margo membranaceus, denticulatus.

1. *Monspeliensis.* South of Europe. *Ann.*
2. *Mauritanica.* Barbary? *Ann.*
3. *Rhagadiolioides.* South of Europe. *Ann.*
4. *Cretica.* Candia. *Ann.* 5. *Pendula.* *Ann.*

* 6. *Aculeata.* Pyrenees? (*Balbis.*)

This genus is given by Persoon as a subgenus to Hyoseris.

1109. **Thrincia.** *Recept.* favosum. *Papp.* difformis: marginalis membrana multifida; centralis stipitatus plumosus. *Cal.* 8-angularis 8-phyll.

1. *Hirta.* Germ. Switzerl. France, Spain. *Per.*
2. *Hispida.* Spain and France. *Ann.*

* 3. *Grumosa.* Portugal. (*Brotero.*)

1414. **Tolpis.** *Recept.* favosum. *Cal.* calycul. squamis subulatis cal. longioribus. *Papp.* difformis, marginalis dentatus; centralis 2 seu 4-aristatus.

1. *Barbata.* Montpellier, Vesuvius, Sicily. *Ann.*

* 2. *Umbellata.* Genoa. * 3. *Altissima.* Piedmont.

Sect. II. *Flowers Capitate, or growing in Heads.*

1438. **Atractylis.** *Recept.* paleaceum. *Papp.* plumosus. *Cal.* imbricatus calycul. *Cor.* radiata, corollulis radii 5 dentatis.

1. *Humilis.* Madrid, Egypt, Narbonne. *Bien.*
2. *Flava.* Sandy parts of Barbary. *Peren.*

1439. **Acarna.** *Recept.* paleaceum. *Papp.* plumosus. *Cal.* imbricatus calycul. *Cor.* flosculosa.

1. *Gummifera.* Spain, Barb. Italy, Candia. *Per.*
2. *Macrocephala.* Tunis. *Peren.*
3. *Macrophylla.* Mt. Atlas near Tlemsen. *Per.*
4. *Cæspitosa.* Barbary near Tlemsen. *Shrub.*
5. *Lancea.* Japan. 6. *Ovata.* Japan.
7. *Cancellata.* Spain, Barbary, and Candia. *Ann.*

Persoon gives this genus as a subgenus to Atractylis.

‡ 1432. **Serratula.** *Recept.* paleaceum seu villosum. *Cal.* imbricatus cylindraceus inermis. *Papp.* plumosus seu dentatus.

1. *Tinctoria.* Engl. and other parts of Eur. *Per.*
2. *Coronata.* Siberia and Italy. *Peren.*
3. *Quinquefolia.* North of Persia. *Peren.*
4. *Humilis.* Mount Atlas near Tlemsen. *Per.*
5. *Mollis.* Spain. *Peren.*
6. *Pygmæa.* Austria, Styria, Carniola, Hung. *Per.*
7. *Alpina.* Engl. Lapl. Switz. and Siberia. *Per.*
8. *Discolor.* Switz. Fran. Austria, Siberia. *Per.*
9. *Angustifolia.* Eastern parts of Siberia. *Per.*
10. *Salicifolia.* Siberia. *Peren.*
11. *Indica.* E. Indies. 12. *Multiflora.* Siberia.
13. *Caspica.* At the Caspian. *Peren.*
14. *Mucronata.* Hills in Barbary. *Peren.*
15. *Amara.* Siberia. *Peren.*
16. *Centauroides.* Siberia. *Peren.*
17. *Japonica.* Japan. 18. *Ciliata.* Egypt.
19. *Setosa.* Silesia. *Bien.*
20. *Arvensis.* Fields of Europe. *Bien.*

* 21. *Subacaulis.* Austria, France. *Per.* (*Gouan.*)
* 22. *Acutifolia.* Monte Video. (*Enc. Bot.* vi. 554.)
* 23. *Albida.* Brasil. *Shr.* (*Decandolle.*)
* 24. *Bifrons.* Do. * 25. *Pedunculata.* Do. *Shr.*

1445. **Carthamus.** *Recept.* paleaceo-setosum. *Cal.* ovatus, imbricatus squamis apice subovato-foliaceis. *Papp.* paleaceo-pilosus. seu 0.

1. *Tinctorius.* Egypt and East Indies. *Ann.*
2. *Flavescens.* Armenia. *Ann.*
3. *Persicus.* Persia. *Ann.*
4. *Dentatus.* Malta and Natolia. *Ann.*
5. *Lanatus.* France, Italy, Candia, Switzerland, Carniola, and Crimea. *Ann.*
6. *Creticus.* Candia. *Ann.*
7. *Pectinatus.* Barbary near Tlemsen. *Per.*
8. *Multifidus.* Hills about Algiers.
9. *Tingitanus.* Hills about Algiers. *Per.*
10. *Cæruleus.* Spain and Barbary. *Per.*
11. *Helenioides.* Barbary near Mascar. *Ann.*
12. *Pinnatus.* Fields of Barbary. *Peren.*
13. *Mitissimus.* At Paris and Montpellier. *Per.*
14. *Carduncellus.* Montpellier. *Peren.*
15. *Arborescens.* Spain. *Shrub.*
16. *Salicifolius.* Rocks of Madeira. *Shrub.*

* 17. *Glaucus.* Near the Caspian. } *Bieberstein,*
* 18. *Oxyacantha.* Do. *Ann.* } Tab. No. 32
* 19. *Cynaroides.* Straits of Magellan. *Bien.*
* 20. *Magellanicus.* Straits of Magellan. (*Lamarck.*)

‡ 1437. **Carlina.** *Recept.* paleaceo-setosum. *Cor.* flosculosæ. *Cal.* radiatus squamis marginalibus longis, coloratis. *Papp.* paleaceo-plumosus.

1. *Acaulis.* Mts. of Italy and Germany. *Per.*
2. *Acanthifolia.* Pyrenees, Vallais, Carniola. *Per.*
3. *Aggregata.* Mountains of Croatia. *Peren.*
4. *Lyrata.* Cape of Good Hope.
5. *Lanata.* Italy, Narbonne, and Barbary. *Ann.*
6. *Involucrata.* Algiers. *Peren.*
7. *Corymbosa.* Italy, Fran. Carniola, Barb. *Per.*
8. *Sulphurea.* Hills in Algiers. *Ann.*
9. *Vulgaris.* Engl. and other parts of Eur. *Bien.*

10. *Racemosa.* Desert parts of Spain. *Ann.*
11. *Pyrenaica.* Pyrenees.
12. *Xeranthemoides.* Teneriffe. *Shrub.*
* 13. *Simplex.* Hungary. (*Pl. Hung.*)
* 14. *Echinus.* At the Caspian. (*Bieberstein.*)

‡ 1429. Arctium. *Recept.* paleaceum. *Cal.* globosus: squamis apice hamis inflexis. *Papp.* setoso-paleaceus.

1. *Lappa.* England and North America. *Bien.*
2. *Bardana,* or *Tomentosum.* Europe. *Bien.*

1459. Pteronia. *Recept.* paleaceum, paleis multipart. *Papp.* subplumosus. *Cal.* imbricatus, squamis carinatis.

1. *Spinosa.*
2. *Camphorata.*
3. *Stricta.*
4. *Echinata.*
5. *Flexicaulis.*
6. *Fastigiata.*
7. *Paniculata.*
8. *Fasciculata.*
9. *Succulenta.*
10. *Glabrata.*
11. *Pallens.*
12. *Aspera.*
13. *Minuta.*
14. *Cephalotes.*
15. *Villosa.*
16. *Hirsuta.*
17. *Cinerea.*
18. *Oppositifolia.*
19. *Viscosa.*
20. *Glauca.*
21. *Ciliata.*
22. *Glomerata.*
23. *Retorta.*
24. *Inflexa.*
25. *Membranacea.*
26. *Scariosa.*
27. *Porophyllum.* Mexico. *Ann.*
* 28. *Tomentosa.* Near Canton. (*Loureiro.*)

Sp. 1—26 shrubby, and from the Cape.

1442. Stobæa. *Recept.* hispidum favosum. *Papp.* paleaceus. *Cor.* flosculosa. *Cal.* imbricatus, squamis dentato-spinosis.

1. *Glabrata.*
2. *Carlinoides.*
3. *Atractyloides.*
4. *Decurrens.*
5. *Lanata.*
6. *Rigida.*
7. *Heterophylla.*
8. *Pinnatifida.*
9. *Pinnata.*

All from the Cape of Good Hope.

1461. Lachnospermum. *Recept.* villosum. *Sem.* villis involuta. *Cal.* cylindricus imbricatus.

1. *Ericifolium.* Cape of Good Hope. *Shr.*

Given by Persoon as a subgenus to Stæhelina.

1443. Barnadesia. *Recept.* villosum. *Papp.* setosus disci, plumosus radii. *Cor.* radiata. *Cal.* imbricatus subventricosus.

1. *Spinosa.* South America. *Shrub.*

1436. Cynara. *Recept.* setosum. *Cal.* dilatatus, imbricatus squamis carnosis, emarginatis cum acumine. *Papp.* sessilis plumosus.

1. *Integrifolia.* Mts. in New Castile.
2. *Scolymus.* Fields of Narbonne, Italy, Sicily, and Barbary. *Peren.*
3. *Horrida.* Madeira. *Peren.*
4. *Carduncultus.* Candia and Barbary. *Peren.*
5. *Humilis.* Spain and Tunis. *Peren.*
6. *Acaulis.* Barbary and in the East. *Peren.*
7. *Glomerata.* Cape of Good Hope.
8. *Pygmæa.* Spain. *Peren.*

1444. Johannia, or Joannesia. *Recept.* villosum. *Papp.* plumosus. *Cor.* flosculosa. *Cal.* imbricatus radiatus.

1. *Insignis.* Peru. *Shrub.*

‡ 1434. Cnicus. *Cal.* imbric. ventricosus, squamis spinosus. *Papp.* plumosus. *Recept.* villosum.

1. *Palustris.* Engl. and other pts. of Eur. *Per.*
2. *Pungens.* Armenia.
3. *Arenarius.* Barbary.
4. *Canus.* Austria. *Peren.*
5. *Pyrenaicus.* Pyrenees. *Peren.*
6. *Gouani,* or *Medius.* Pyrenees. *Peren.*
7. *Dissectus.* France. *Peren.*
8. *Acarna.* Fields in Spain. *Ann.*
9. *Monspessulanus.* Montpellier. *Peren.*
10. *Lanceolatus.* Engl. Asia, and Amer. *Bien.*
11. *Ferox.* France and Italy. *Bien.*
12. *Ciliatus.* Siberia. *Peren.*
13. *Leucocephalus.* Candia.
14. *Echinatus.* Barbary near Mascar.
15. *Eriophorus.* England, France, Germany, Spain, Portugal, &c. *Bien.*
16. *Cynaroides.* Candia.
17. *Orientalis.* In the East.
18. *Discolor.* North America. *Bien.*
19. *Giganteus.* Hedges of Algiers. *Peren.*
20. *Altissimus.* Carolina. *Peren.*
21. *Lanatus.* E. Ind. 22. *Inermis.* *Per.*
23. *Pratensis.* Eng. and other pts. of Eur. *Per.*
24. *Heterophyllus.* Britain, Sweden, Friesland, Silesia, Switzerland. *Peren.*
25. *Helenioides.* Siberia. *Peren.*
26. *Serratuloides.* Siberia, Switzerland, Montpellier. *Peren.*
27. *Medius.* Italy. *Peren.*
28. *Rigens.* Switzerland. *Peren.*
29. *Salisburgensis.* Damp meadows of Salzburg. *Peren.*
30. *Rivularis.* Austria and S. of Hungary. *Per.*
31. *Montanus.* Dry mts. of Croatia. *Peren.*
32. *Antarcticus.* Dauphiny. *Peren.*
33. *Carniolicus.* Mountains of Carniola. *Peren.*
34. *Pauciflorus.* Mountains of Hungary. *Bien.*
35. *Tataricus.* Siberia. *Peren.*
36. *Oleraceus.* North of Europe. *Peren.*
37. *Erisithales.* Austria and France. *Peren.*
38. *Ochroleucus.* Switzerland and Savoy. *Per.*
39. *Tuberosus.* Germany, Switz. France. *Per.*
40. *Acaulis.* Engl. and other pts. of Eur. *Per.*
41. *Dentatus.* *Peren.*
42. *Casabonæ.* South of Europe. *Bien.*
43. *Afer.* Barbary and Syria. *Bien.*
44. *Stellatus.* Near Nice. *Ann.*
45. *Syriacus.* Spain, Barbary, Egypt, Candia, and Syria. *Ann.*
46. *Flavescens.* Spain. *Ann.*
47. *Pinnatifidus.* Spain. *Ann.*
48. *Spinosissimus.* Mountains of Austria, Switzerland, and Tartary. *Peren.*
49. *Echinocephalus.* Tauria. *Peren.*
50. *Centauroides.* Pyrenees and Siberia. *Peren.*
51. *Uniflorus.* Siberia. *Peren.*
52. *Carthamoides.* Siberia. *Peren.*
53. *Cernuus.* Siberia. *Peren.*
* 54. *Lappaceus.* At the Caspian. *Bien.* } Bieberst.
* 55. *Strigosus.* At the Caspian. *Bien.* } *Tabl.*
* 56. *Arvensis.* England, &c. *Peren.* (*Serratula arvensis* of Willd.)
* 57. *Rufescens.* Pyrenees. } Decand. *Syn.* 274.
* 58. *Ambiguus.* Mt. Cenis. }
* 59. *Laciniatus.* S. of France. *Per.* (Lam. *Enc.*)
* 60. *Horridulus.* Carolina. (*Mich.* p. 90.)

This genus is given by Persoon as a subgenus to Carduus.

‡ 1433. Carduus. *Cal.* imbric. ventricosus squamis spinosis. *Papp.* capillaris seu scaber. *Recept.* villosum.

1. *Leucographus.* Italy and France. *Ann.*
2. *Peregrinus.* *An.* 3. *Arabicus.* Arabia? *An.*
4. *Lanuginosus.* Armenia.

5. *Macrocephalus.* Tunis on Mount Zowan.
6. *Nutans.* Engl. and other pts. of Eur. *Bien.*
7. *Carlinoides.* Pyrenees. *Peren.*
8. *Carlinæfolius.* Wet parts of the Pyrenees.
9. *Acanthoides.* England and other parts of Europe. *Ann. Bien.*
10. *Hamulosus.* Hungary. *Bien.*
11. *Candicans.* Hungary. *Bien.*
12. *Personata.* Switz. Geneva, Austria. *Bien.*
13. *Crispus.* Northern parts of Europe. *Ann.*
14. *Tenuiflorus.* England and Scotland. *Ann.*
15. *Polyanthemus.* Rome. *Bien.*
16. *Paniculatus.* Wet parts of the Pyrenees. *Per.*
17. *Pycnocephalus.* South of Europe. *Peren.*
18. *Argentatus.* Egypt. *Ann.*
19. *Cyanoides.* Saxony and Siberia. *Peren.*
20. *Polyclonos.* Sib. *Per.* 21. *Pectinatus.* *Bien.*
22. *Arctioides.* Carniola and Croatia.
23. *Alpestris.* Mountains of Croatia.
24. *Defloratus.* Switz. Germ. Montpel. *Per.*
25. *Seminudus.* North of Persia.
26. *Pannonicus.* Austria and south of Hungary. *Peren.*
27. *Parviflorus.* Southern Alps. *Peren.*
28. *Radiatus.* Mountains of Hungary. *Peren.*
29. *Lycopifolius.* Mountains of Dauphiny. *Per.*
30. *Virginianus.* Virginia.
31. *Marianus.* Engl. France, Italy, Germ. *Ann.*
32. *Nitidus.* Mountains of Hungary. *Peren.*
33. *Cerinthoides*, or *Nudicaulis.* Italy, south of France, and Spain. *Per.*
34. *Leucanthus.* Spain. *Ann.*
35. *Linearis.* Japan.
36. *Mollis.* Mts. of Austria and Montpell. *Per.*

* 37. *Pulcher.* Crimea. See Clarke's *Trav.* p. 739.
* 38. *Podacanthus.* Dauphiny. } Decand. *Syn.*
* 39. *Argemone.* Pyrenees. } 269.
* 40. *Muticus.* Carolina. } *Mich.* ii. p. 89.
* 41. *Repandus.* Carolina. }

1440. Onoseris. *Recept.* subnudum. *Papp.* pilosus. *Cal.* imbric. *Cor.* radiata, corollulis radii tridentatis.

1. *Purpurata.* New Granada. *Shrub.*
2. *Mexicana.* Mexico. *Shrub.*

1441. Stokesia. *Recept.* nudum. *Papp.* 4-setus. *Cal.* foliaceus subimbric. *Cor.* radiata, corollulis radii infundib. irregularibus.

1. *Cyanea.* South of Carolina. *Peren.*

1431. Liatris. *Recept.* nudum. *Cal.* oblongus imbric. *Papp.* plumosus coloratus.

1. *Squarrosa.* Virginia and Pennsylvania. *Per.*
2. *Scariosa.* Virginia and Pennsylvania. *Peren.*
3. *Elegans.* Carolina and Georgia. *Peren.*
4. *Pilosa.* North America. *Peren.*
5. *Graminifolia.* Carolina. *Peren.*
6. *Spicata.* Virginia and Pennsylvania. *Peren.*
7. *Paniculata.* Carolina. *Peren.*
8. *Odoratissima.* Carolina. *Peren.*

1430. Vernonia. *Recept.* nudum. *Cal.* ovatus imbric. *Papp.* dupl.; ext. paleaceus; int. capillaris.

1. *Noveboracensis.* United States, Canada, and Kamtchatka. *Peren.*
2. *Præalta.* Carol. Virgin. and Pennsylv. *Per.*
3. *Glauca.* Maryl. Virgin. and Carol. *Peren.*
4. *Anthelmintica.* East Indies. *Ann.*

* 5. *Angustifolia.* North America. } *Mich.* ii.
* 6. *Fasciculata.* Illinois. } p. 94.
* 7. *Scorpioides.* Brazil. (Lam. *Enc.* ii. 88.
* 8. *Albicaulis.* Isle of St Cruz. (Vahl in *Herb. Juss.*)
* 9. *Longifolia.* Guadaloupe. (*Herb.* Juss.)
* 10. *Subrepanda.* Brasil. (*Herb.* Juss.)
* 11. *Sericea.* Cayenne. } Richard, *Act. Soc.*
* 12. *Remotiflora.* Cayenne. } *Par.* 117.

‡ 1435. Onopordon. *Recept.* favosum. *Papp.* capillaris. *Cal.* imbric. squamis mucronatis.

1. *Acanthium.* Engl. and other pts. of Eur. *Bien.*
2. *Tauricum.* Tauria. *Bien.*
3. *Macrocanthum.* Morocco. *Ann. Bien.*
4. *Illyricum.* South of Europe. *Bien.*
5. *Deltoides.* Siberia. *Peren.*
6. *Græcum.* In the East. *Ann.*
7. *Arabicum.* Portugal and Narbonne. *Bien.*
8. *Uniflorum.* Spain. *Bien.* 9. *Acaulon.* *Bien.*
10. *Rotundifolium.* Dauphiny, Italy, and the Vallais. *Peren.*

Sect. III. *Flowers Discoid, the Florets being tubular.*

1460. Stæhelina. *Recept.* brevissime paleaceum. *Papp.* plumosus. *Anth.* basi caudatæ. *Cal.* hæmisphæricus imbricatus.

1. *Dubia.* Spain, Narbonne, Italy. *Shrub.*
2. *Arborescens.* Cand. Fran. Hieres Isles. *Shrub.*
3. *Fruticosa.* Candia, and in the East. *Shrub.*
4. *Hastata.* Arabia Felix. *Shrub.*
5. *Ilicifolia.* New Granada. *Shrub.*
6. *Spinosa.* Egypt. *Shrub.*
7. *Chamæpeuce.* Candia. *Shrub.*
8. *Imbricata.* Cape of Good Hope. *Shrub.*
9. *Corymbosa.* Cape of Good Hope. *Shrub.*

* 10. *Pinnata.* Spain. *Peren.* (*Lagasca.*)

1462. Haynea, or Pacourina. *Recept.* paleaceum carnosum. *Papp.* pilosus. *Cal.* ovatus imbric.

1. *Edulis.* Coast of Guinea.

1466. Calea. *Recept.* paleaceum. *Papp.* pilosus. *Cal.* imbric.

1. *Jamaicensis.* Jamaica. *Shrub.*
2. *Aspera.* Warm parts of America. *Ann.*
3. *Oppositifolia.* Mountains of Jamaica.
4. *Amellus.* Jamaica.
5. *Lobata.* Vera Cruz and Jamaica. *Shrub.*
6. *Scoparia.* Mountains of Jamaica. *Shrub.*
7. *Pinifolia.* New Zealand. *Shrub.*
8. *Leptophylla.* New Zealand. *Shrub.*

* 9. *Cordata.* Cochinchina. (*Loureiro.*)
* 10. *Aculeata.* Van Diem. Isl. } Labill. *N. Holl.*
* 11. *Spectabilis.* Van Diem. Isl. } *Pl.* ii. p. 185.

‡ 1447. Bidens. *Recept.* paleaceum planum. *Sem.* tetragona. *Papp.* aristis 2 seu 4 erectis, scabris. *Cal.* subæqualis calycul. *Cor.* rarius flosculo uno alterove radiante instruitur.

1. *Tripartita.* Engl. and other pts. of Eur. *An.*
2. *Nodiflora.* Bengal. *Ann.*
3. *Tenella.* Cape of Good Hope. *Ann.*
4. *Cernua.* England and N. America. *Ann.*
5. *Chrysanthemoides.* North America. *Ann.*
6. *Heterophylla.* Mexico. *Peren.*
7. *Frondosa.* North America. *Ann.*
8. *Connata.* North America. *Ann.*
9. *Leucantha.* Warm parts of America. *Ann.*
10. *Chinensis.* East Indies, China, Japan. *Ann.*
11. *Pilosa.* North America. *Ann.*
12. *Sambucifolia.* Peru and Mexico. *Peren.*
13. *Odorata.* Mexico. *Ann.*

14. *Bipinnata.* Virginia and Pennsylvania. *Ann.*
15. *Nivea.* South Carolina and Jamaica. *Peren.*
16. *Verticillata.* Vera Cruz. *Ann.*
17. *Hirsuta.* Jamaica.
18. *Scandens.* Vera Cruz and Jamaica. *Shrub.*
19. *Crocata.* Mexico. *Peren.*
20. *Bullata.* N. America, now in Italy. *Ann.*

*21? *Dichotoma.* *Peren.* (Persoon, *Synops.* ii. p. 393.)

1446. SPILANTHES. *Recept.* paleaceum conicum. *Papp.* aristis duabus: altera minore. *Cal.* subæqualis.

1. *Urens.* America.
2. *Pseudo-acmella.* Ceylon. *Ann.*
3. *Acmella.* Ceylon. *Ann.*
4. *Uliginosa.* Jamaica. *Ann.*
5. *Exasperata.* Venezuela. *Ann.*
6. *Alba.* Peru. *Ann.*
7. *Atriplicifolia.* South America.
8. *Insipida.* America.
9. *Oleracea.* East Indies. *Ann.*

*10? *Tinctorius.* Cochinchina. (*Loureiro.*)

1470. ATHANASIA. *Recept.* paleaceum. *Papp.* paleaceus, brevissimus. *Cal.* imbricatus.

1. *Crenata.*
2. *Punctata.*
3. *Capitata.*
4. *Scabra.*
5. *Pubescens.*
6. *Canescens.*
7. *Glabra.*
8. *Annua.*
9. *Dentata.*
10. *Aspera.*
11. *Quinquedentata.*
12. *Trifurcata.*
13. *Virgata.*
14. *Hirsuta.*
15. *Tomentosa.*
16. *Flexuosa.*
17. *Filiformis.*
18. *Crithmifolia.*
19. *Parviflora.*
20. *Pectinata.*
21. *Pinnata.*

*22. *Cuneifolia.*
*23. *Tricuspis.*

All shrubby, and from the Cape, except species 8 annual, and from Barbary.

‡1468. SANTOLINA. *Recept.* paleaceum. *Papp.* 0. *Cal.* imbric. hemisphæricus.

1. *Chamæ-cyparissus.* S. of Europe. *Shrub.*
2. *Squarrosa.* Spain. *Shrub.*
3. *Viridis.* Spain. *Shrub.*
4. *Rosmarinifolia.* Spain. *Shrub.*
5. *Maritima.* Engl. and other pts. of Eur. *Per.*
6. *Fragrantissima.* Sandy deserts of Egypt. *Shr.*
7. *Alpina*, or *Erecta.* Italy. *Peren.*
8. *Anthemoides.* Spain and Italy. *Peren.*

*9. *Ericoides.* In the East? (*Enc. Bot.* vi. 504.)
*10. *Tinctoria.* Chili. (*Molina.*)
*11. *Ptarmicoides.* In the East? *Peren.* (*Enc. Bot.* vi. 507.)
*12. *Eriosperma.* Italy. (*Persoon.*)

1467. CÆSULIA. *Recept.* paleaceum paleis semina involventibus. *Papp.* 0. *Cal.* triphyll.

1. *Axillaris.* East Indies. *Peren.*
2. *Radicans.* Guinea. *Peren.*

1465. TARCHONANTHUS. *Recept.* villosum. *Sem.* villis involuta. *Cal.* 1-phyll. semi 7-fid. turbinatus.

1. *Camphoratus.* *Shr.*
2. *Ellipticus.* *Shrub.*
3. *Lanceolatus.* *Shr.*
4. *Dentatus.* *Shrub.*
5. *Ericoides.* *Shrub.*

1455. KUHNIA. *Recept.* nudum. *Papp.* plumosus sessilis. *Cal.* imbric. cylindraceus.

1. *Eupatorioides.* Pennsylvania. *Peren.*
2. *Critonia.* Pennsylv. and Virginia. *Peren.*

‡1454. EUPATORIUM. *Recept.* nudum. *Papp.* pilosus vel scaber. *Cal.* imbric. oblongus. *Styl.* semibifidus longus.

1. *Parviflorum.* Jamaica. *Shrub.*
2. *Dalea.* Jamaica. *Shrub.*
3. *Triflorum.* At rivers in Guiana. *Shrub.*
4. *Hyssopifolium.* Virginia and Pennsylv. *Per.*
5. *Linearifolium.* Carolina. *Peren.*
6. *Coronopifolium.* Carolina. *Peren.*
7. *Fœniculaceum.* Carolina. *Peren.*
8. *Zeylanicum.* Ceylon.
9. *Sessilifolium.* Virginia and Pennsylv. *Per.*
10. *Truncatum.* Pennsylvania. *Peren.*
11. *Album.* Pennsylvania and Japan. *Peren.*
12. *Lanceolatum.* North America. *Peren.*
13. *Teucrifolium.* North America. *Peren.*
14. *Cuneifolium.* Carolina. *Peren.*
15. *Chinense.* China and Japan. *Peren.*
16. *Melissoides.* Pennsylvania. *Peren.*
17. *Rotundifolium.* Virginia and Canada.
18. *Altissimum.* Pennsylvania. *Peren.*
19. *Ceanothifolium.* North America. *Peren.*
20. *Pubescens.* North America. *Peren.*
21. *Trifidum.* Caribbee Islands.
22. *Trifoliatum.* Virginia. *Peren.*
23. *Cannabinum.* Engl. and other pts. of Eur. *Per.*
24. *Japonicum.* Japan. *Peren.*
25. *Syriacum.* Syria. *Peren.*
26. *Auriculatum.* Brazil. *Shrub.*
27. *Coriaceum.* South America. *Shrub.*
28. *Diffusum.* South America.
29. *Cinereum.* Cape of Good Hope. *Shrub.*
30. *Scabrum.* New Granada. *Peren.*
31. *Purpureum.* North America. *Peren.*
32. *Maculatum.* North America. *Peren.*
33. *Verticillatum.* North America. *Peren.*
34. *Perfoliatum.* Wet parts of Virginia. *Per.*
35. *Flexuosum.* Island of Mauritius. *Shrub.*
36. *Nervosum.* Jamaica. *Shrub.*
37. *Rigidum.* Jamaica.
38. *Glutinosum.* Peru. *Shrub.*
39. *Microphyllum.* New Granada. *Shrub.*
40. *Canescens.* Santa Cruz and St Thomas. *Sh.*
41. *Villosum.* Jamaica and St Domingo. *Shrub.*
42. *Molle.* Guiana and Jamaica. *Shrub.*
43. *Cordifolium.* Jamaica. *Shrub.*
44. *Montanum.* Mountains of Jamaica. *Shrub.*
45. *Cœlestinum.* Carolina and Virginia. *Per.*
46. *Urticæfolium.* New Granada. *Peren.*
47. *Macrophyllum.* Caribbee Islands. *Per.*
48. *Squarrosum.* Mexico. *Peren.*
49. *Aromaticum.* Virginia. *Peren.*
50. *Ageratoides.* Canada and Virginia. *Per.*
51. *Deltoideum.* *Peren.*
52. *Conyzoides.* South America.
53. *Atriplicifolium.* SantaCruz, Guadaloupe. *Shr.*

34. *Repandum.* The Antilles. *Shrub.*

55. *Sinuatum.* St Domingo. *Shrub.*
56. *Odoratum.* Jamaica. *Shrub.*
57. *Divaricatum.* Cape of Good Hope. *Shrub.*
58. *Obtusifolium.* Warm parts of America. *Shr.*
59. *Coloratum.* Guinea. *Shrub.*
60. *Retrofractum.* Cape of Good Hope.
61. *Cotinifolium.* Martinique. *Shrub.*
62. *Ayapana.* Brazil. *Shrub.*
63. *Triplinerve.* Santa Cruz.
64. *Ivæfolium.* Fields of Jamaica. *Peren.*
65. *Stoechadifolium.* New Granada. *Peren.*
66. *Myosotifolium.* Warm pts. of America. *Bien.*
67. *Amygdalinum.* Peru.

68. *Spicatum.* Monte Video. *Peren.*
69. *Salicinum.* Peru. *Peren.*
70. *Furcatum.* The Antilles.
71. *Sophiæfolium.* The Antilles. *Ann.*
*72. *Ferrugineum.* V. Diem. Isl. *Shr.* } Labill.
*73. *Rosmarinifolium.* V. Diem. Isl. *Shr.* } *N Hol.*
*74. *Hispidum.* Mozambique. (*Loureiro.*)
*75. *Cubense.* Cuba. (*Ortega.*)

1464. CHRYSOCOMA. *Recept.* nudum. *Papp.* simp. *Cal.* hæmisphæricus, imbric. *Stylus* vix flosculis longior.

1. *Comaurea.* *Per.* 7. *Tomentosa.* *Shrub.*
2. *Patula.* *Shrub.* 8. *Nivea.* *Shrub.*
3. *Cernua.* *Shrub.* 9. *Scabra.* *Shrub.*
4. *Microphylla.* *Shr.* 10. *Denticulata.* *Shr.*
5. *Ciliaris.* *Shrub.* 11. *Undulata.* *Per.*
6. *Montana.* *Shrub.* 12. *Purpurea.*
13. *Linosyris.* Temperate parts of Europe. *Per.*
14. *Biflora.* Siberia. *Peren.*
15. *Villosa.* Siberia, Tartary, Hungary. *Per.*
*16. *Cinerea.* Van Diem. Isl. *Shr.* } Labill.
*17. *Reticulata.* Ditto. *Shrub.* } *N. Holl.*
*18. *Squamata.* Ditto. } Pl. ii. p. 39.
*19. *Dracunculoides.* Siberia. (Lam. *Enc.*)
*20. *Nudata.* Carolina. (*Mich.* ii. 101.)

Sp. 1—9, 11, from the Cape, except 6, from Mount Horeb, and 12, from the Isle of Tanna.

1452. MIKANIA. *Recept.* nudum. *Cal.* 4-seu 6-phyll. æqualis 4-seu 6-florus. *Papp.* pilosus.

1. *Houstonis.* Vera Cruz and Jamaica. *Shrub.*
2. *Hastata.* Mountains of Jamaica. *Shrub.*
3. *Scandens.* Wet parts of Virginia. *Shrub.*
4. *Volubilis.* East Indies. *Shrub.*
5. *Denticulata.* Surinam. *Shrub.*
6. *Tomentosa.* Island of Bourbon. *Shrub.*
7. *Amara* Guiana and the Caribbees. *Shrub.*
8. *Chenopodifolia.* Sierra Leone.
9. *Auriculata.* Cape of Good Hope. *Peren.*
10. *Stipulacea.* Brasil.
11. *Cordifolia.* South America. *Shrub.*
12. *Laurifolia.* Mexico. *Shrub.*
13. *Melissæfolia.* Peru.
14. *Saturejæfolia.* Monte Video. *Shrub.*

1450. KLEINIA. *Recept.* nudum. *Papp.* pilosus. *Cal.* simpl. æqualis 5-phyll.

1. *Ruderalis.* Gravelly places, and on walls of houses, &c. in Jamaica, Hispaniola, and Martinique. *Ann.*
2. *Porophyllum.* Martinique and in Peru. *Ann.*
3. *Angulata.* Arabia Felix.
4. *Suffruticosa.* New Spain and Brazil. *Shrub.*

1449. CACALIA. *Recept.* nudum. *Papp.* pilosus. *Cal.* cylindricus, oblongus, basi tantum subcalycul.

1. *Pappillaris.* Cape of Good Hope. *Shrub,*
2. *Pendula.* Mts. in Arabia Felix. *Shrub.*
3. *Anteuphorbium.* Cape. 4. *Cuneifolia.* Cape.
5. *Kleinia* Canary Islands, also in India. *Shr.*
6. *Odora.* Mountains in Arabia Felix. *Shrub.*
7. *Ficoides.* Cape. 11. *Rigida.* Cape.
8. *Carnosa.* Cape. 12. *Arbuscula.* Cape.
9. *Repens.* Cape. 13. *Tomentosa.* Cape.
10. *Articulata.* Cape.
14. *Asclepiadea.* South America. *Shrub.*
15. *Appendiculata.* Wet parts of Teneriffe. *Shr.*
16. *Reticulata.* Island of Bourbon. *Shrub.*
17. *Acaulis.* Cape. *Per.* 18. *Radicans.* Cape. *Per.*
19. *Sempervirens.* Mountains of Boka and Kurma in Arabia Felix. *Peren.*
20. *Sonchifolia.* Ceylon, Malabar, China. *Ann.*
21. *Sagittata.* Java. *Ann.*
22. *Hieracioides.* *Ann.* 24. *Incana.*
23. *Bicolor.* 25. *Rotundifolia.*
26. *Scabra.* Brazil.
27. *Saracenica.* South of France. *Per.*
28. *Hastata.* Siberia. *Peren.*
29. *Suaveolens.* Virginia and Canada. *Peren.*
30. *Atriplicifolia.* Virginia and Canada. *Per.*
31. *Reniformis.* Pennsylvania. *Peren.*
32. *Echinata.* Coast of Teneriffe.
33. *Alpina.* Switzerland, Austria, Salzburg, Silesia, and the Pyrenees. *Peren.*
34. *Albifrons.* Austria, Switzerland, Salzburg, and Dauphiny. *Peren.*
35. *Leucophylla.* Mountains of Dauphiny. *Per.*
36. *Candicans.* Straits of Magellan. *Peren.*
37. *Scandens.* Cape. 38. *Quinqueloba.* Cape.
39. *Bipinnata.* Cape.
*40. *Carnosa.* Cape of Good Hope. *Shr.* (*H. Kew* vol. iii. p. 156.)
*41. *Cylindrica.* Africa. *Shrub.* (Lam. *Enc.*)
*42. *Linearis.* Van Diem. Island. } Labill.
*43. *Salicina.* Ditto. } *N. Holl.*
*44. *Bulbosa.* China. } *Loureiro,* ii.
*45. *Pinnatifida.* At Canton. } p. 592.

Sp. 22—25 from the East Indies.

1448. LAVENIA. *Recept.* nudum. *Papp.* 3-aristatus apice glandulosus. *Cal.* ovatus subimbric.

1. *Decumbens.* Jamaica. *Ann.*
2. *Erecta.* Ceylon, and the Society Islands.

1456. AGERATUM. *Recept.* nudum. *Papp.* paleis 5 subaristatis. *Cal.* oblongus, duplici foliorum serie. *Cor.* 4-seu 5 fidæ.

1. *Conyzoides.* America. *Ann.*
2. *Latifolium.* Peru near Lima. *Ann.*
3. *Ciliare.* Bisnagur.
*4. *Corymbosum,* (Zuccagni ex Balbis.)

1457. STEVIA. *Recept.* nudum. *Papp.* aristato-paleaceus. *Cal.* cylindraceus ex simplici foliorum serie.

1. *Linearis.* Mexico. *Shrub.*
2. *Eupatoria.* Mexico. *Peren.*
3. *Salicifolia.* Mexico. *Peren.*
4. *Serrata.* Mexico. *Peren.*
5. *Pedata.* Mexico. *Ann.* *6. *Punctata.*

1458. HYMENOPAPPUS. *Recept.* nudum. *Papp.* polyphyll. paleaceus. *Cal.* polyphyll. patens.

1. *Scabiosæus.* Carolina. *Ann.*
*2. *Anthemoides.* Buenos Ayres. (Juss. *Ann. Mus.*)

1463. CEPHALOPHORA. *Recept.* nudum hemisphericum. *Papp.* paleaceus polyphyll. *Cal.* polyphyll. reflexus.

1. *Glauca.* Chili. *Peren.*

1471. PENTZIA. *Recept.* nudum. *Papp.* margo membranaceus lacerus. *Cal.* imbricatus hemisphæricus.

1. *Flabelliformis.* Cape of Good Hope. *Shr.*

Given by Persoon as a subgenus to BALSAMITA.

1451. ETHULIA. *Recept.* nudum. *Papp.* margo membranaceus. *Cal.* æquales.

1. *Conyzoides.* India. *Ann.*
2. *Sparganophora.* India.
3. *Struchium.* Jamaica. *Ann.*
4. *Divaricata.* Fields of Malabar. *Ann.*
5. *Tomentosa.* China. *Shrub.*
6. *Bidentis.* India. *Ann.*
7. *Uniflora.* Carolina.

genus SPARGANOPHORUS.

1453. PIQUERIA. *Recept.* nudum. *Cal.* 4-phyll. æqualis 4-florus. *Papp.* 0. *Sem.* 5-gona.
1. *Trinervia.* Mexico.

1469. BALSAMITA. *Recept.* nudum. *Papp.* 0. *Cal.* imbricatus.
1. *Grandiflora.* Algiers. *Bien.*
2. *Virgata.* Near Nice. *Ann. Peren.*
3. *Ageratifolia.* Candia. *Shrub.*
4. *Vulgaris.* Tuscany, Narbonne, Switz. *Per.*

SUPERFLUA.

SECT. I. *Flowers Disçoid.*

‡ 1473. ARTEMISIA. *Recept.* subvillosum, vel nudiusculum. *Papp.* 0. *Cal.* imbric. squamis rotundatis, conniventibus. *Cor.* radii nullæ.
1. *Vermiculata.* Cape. *Shr.* 2. *Ambigua.* Do. *Shr.*
3. *Judaica.* Palestine, Arabia, Numidia. *Shr.*
4. *Valentina.* Valentia. *Shrub.*
5. *Aragonensis.* Spain. *Shrub.*
6. *Contra.* Persia. *Shrub.*
7. *Capillaris.* Japan. *Shrub.*
8. *Abrotanum.* Syria, Galatia, Cappadocia, Italy, Carniola, and Montpellier. *Shrub.*
9. *Procera.* Italy, France, and Siberia. *Shrub.*
10. *Tenuifolia.* East Indies and China. *Shrub.*
11. *Odoratissima.* Barbary. *Shrub.*
12. *Afra.* Cape of Good Hope? *Shrub.*
13. *Arborescens.* Italy, in the East, Barbary. *Shr.*
14. *Argentea.* Madeira. *Shrub.*
15. *Glacialis.* Dauphiny and Switzerland. *Per.*
16. *Mutellina.* Carinthia, Tyrol, Savoy, Switzerland, Dauphiny, and Italy. *Peren.*
17. *Splendens.* Armenia. *Peren.*
18. *Lanata.* Mountains of Spain. *Peren.*
19. *Caucasica.* In Caucasus. *Peren.*
20. *Alpina.* Mountains of Siberia. *Peren.*
21. *Spicata.* Carinthia, Salzburg, Tyrol, Switzerland, Savoy, Italy, and Spain. *Per.*
22. *Pectinata.* Dauria at road sides. *Ann.*
23. *Tanacetifolia.* Dauphiny and Piedmont. *Per.*
24. *Insipida.* Mountains of Dauphiny. *Peren.*
25. *Dentata.* Siberia. *Peren.*
26. *Santonica.* Tartary, Persia, &c.
27. *Scoparia.* Hungary and Tartary. *Ann.*
28. *Campestris.* Engl. and other pts. of Eur. *Per.*
29. *Herbacea.* Siberia. *Peren.*
30. *Pauciflora.* Banks of the Wolga. *Peren.*
31. *Anethifolia.* Lake Baikal. *Peren.*
32. *Palustris.* Lake Baikal. *Ann.*
33. *Camphorata.* Carniol. Carinth. Italy, Fran. *Shr.*
34. *Crithmifolia.* Portugal, France, and coasts of the Atlantic. *Peren.*
35. *Saxatilis.* Hungary. *Peren.*
36. *Nutans.* At the river Don. *Peren.*
37. *Glauca.* Siberia? *Ann.*
38. *Salsoloides.* Siberia. *Shrub.*
39. *Nitrosa.* Salt mountains of Siberia. *Shrub.*
40. *Monogyna.* Hungary and Siberia. *Peren.*
41. *Palmata.* S. of France and Spain. *Shrub.*
42. *Maritima.* Engl. Sweden, Norw. Pomer. *Per.*
43. *Salina.* Germany and Hungary. *Peren.*
44. *Gallica.* France. *Peren.*
45. *Fragrans.* Armenia. *Peren.*
46. *Austriaca.* Austria and Hungary. *Peren.*
47. *Orientalis.* Armenia. *Peren.*
48. *Vallesiaca.* Switzerl. Italy, and Spain. *Per.*
49. *Taurica.* Mount Taurus. *Per.*
50. *Lerchiana.* Banks of the Wolga. *Peren.*
51. *Frigida.* Frozen parts of Dauria. *Peren.*
52. *Rupestris.* Rocks of Oeland. *Peren.*
53. *Borealis.* East of Siberia. *Peren.*
54. *Sericea.* From the Angara to the Jaik in Siberia. *Peren.*
55. *Repens.* Siberia. *Peren.*
56. *Pontica.* Germ. Switzerland and Italy. *Per.*
57. *Chamæmelifolia.* Fran. Italy, and the East. *Per.*
58. *Annua.* Mountains of Siberia. *Ann.* and *Bien.*
59. *Biennis.* New Zealand? *Bien.*
60. *Laciniata.* Siberia. *Peren.*
61. *Canescens.* Armenia. *Peren.*
62. *Armeniaca.* Armenia. *Peren.*
63. *Absinthium.* Engl. and other pts. of Eur. *Per.*
64. *Siversiana.* Siberia. *Bien.*
65. *Vulgaris.* Engl. and other parts of Eur. *Per.*
66. *Indica.* E. Indies, China, and Japan. *Peren.*
67. *Integrifolia.* Siberia. *Peren.*
68. *Japonica.* Japan. *Peren.*
69. *Cærulescens.* Engl. and other pts. of Eur. *Shr.*
70. *Dracunculus.* Siberia, Tartary, S. of Eur. *Per.*
71. *Chinensis.* China and Siberia. *Shrub.*
*72? *Virens.* Spain. *Bien.* (*Persoon.* i. p. 413.)

1478. CARPESIUM. *Recept.* nudum. *Papp.* 0. *Cal.* imbric. squamis exterioribus reflexis.
1. *Cernuum.* Italy, Austria, Switz. Spain. *Per.*
2. *Abrotanoides.* China and Aquileia. *Peren.*

‡ 1472. TANACETUM. *Recept.* nudum. *Papp.* submarginatus. *Cal.* imbric. hemisphæricus. *Cor.* radii obsoletæ, 3-fidæ.
1. *Vestitum.*
2. *Longifolium.*
3. *Linifolium.* *Shr.*
4. *Axillare.*
5. *Suffruticosum.* *Shr.*
6. *Sibiricum.* Siber. *Per.*
7. *Argenteum.* Armenia. *Peren.*
8. *Angulatum.* In the East. *Peren.*
9. *Incanum.* In the East. *Peren.*
10. *Cotuloides.* Cape of Good Hope. *Ann.*
11. *Orientale.* Armenia. *Peren.*
12. *Annuum.* Spain, France, and Tuscany. *Ann.*
13. *Obtusum.* Cape. 14. *Grandiflorum.* Cape.
15. *Monanthos.* In the East. *Ann.*
16. *Multiflorum.* Cape of Good Hope.
17. *Myriophyllum.* In the East. *Peren.*
18. *Vulgare.* Engl. and other parts of Eur. *Per.*
Sp. 1—5 from the Cape.

1515. COTULA. *Recept.* subnudum. *Papp.* marginatus. *Corollulæ* disci 4-fidæ: radii fere nullæ.
1. *Filifolia.* Cape of Good Hope. *Ann.*
2. *Anthemoides.* St Helena, Spain, Egypt. *Ann.*
3. *Aurea.* Spain, and South of Europe. *Ann.*
4. *Pubescens.* Fields of Barbary. *Ann.*
5. *Pusilla.* Cape. 6. *Nudicaulis.* Cape.
7. *Abrotanifolia.* Candia. *Peren.*
8. *Coronopifolia.* Cape, Friezl. Brem. Hamb. *Ann.*
9. *Viscosa.* Vera Cruz.
10. *Bipinnata.*
11. *Globifera.* *Ann.*
12. *Tanacetifolia.* *Ann.*
13. *Sericea.* *Per.*
14. *Umbellata.*
15. *Quinquefida.*
16. *Cuneifolia.* China. *Ann.*
17. *Minuta.* New Caledonia.
18. *Minima.* China. *Ann.*
19. *Maderaspatana.* East Indies. *Ann.*
20. *Bicolor.* Do. *Ann.* 21. *Pyrethraria.* Amer.
22. *Spilanthus.* Coasts of Carthagena.
*23. *Decumbens.* N. Holland. (Desf. *Cat.*)
Sp. 10, 15 from the Cape.

2. *Inapertum*. Switz. Hung. and Italy. *Ann.*
3. *Orientale*. Armenia. *Ann.*

1516. ANACYCLUS. *Recept.* paleaceum. *Papp.* emarginatus. *Sem.* lateribus membranaceis.
1. *Creticus*. Candia. *Ann.*
2. *Orientalis*. In the East.
3. *Aureus*. S. of Europe and the East. *Ann.*
4. *Alexandrinus*. Egypt, near Alexandria. *An.*
5. *Valentinus*. Valentia and Barbary. *Ann.*

SECT. II. *Flowers Semiflosculous and Subbilabiate.*

1477. DENEKIA. *Recept.* nudum. *Papp.* 0. *Cal.* imbric. *Cor.* radii bilabiatæ.
1. *Capensis*. Cape of Good Hope.

1495. PERDICIUM. *Recept.* nudum. *Papp.* simpl. *Corollulæ* bilabiatæ.
1. *Taraxaci*. Cape of Good Hope. *Peren.*
2. *Tomentosum*. Japan. *Peren.*
3. *Purpureum*. Straits of Magellan. *Peren.*
4. *Magellanicum*. Straits of Magellan. *Peren.*
5. *Nervosum*. Cape. 6. *Chilense*. Chili. *Per.*
7. *Lactucoides*. Straits of Magellan. *Peren.*
8. *Squarrosum*. Monte Video. *Peren.*
9. *Brasiliense*. Brasil. *Peren.*
10. *Lævigatum*. Portobello, Isthm. of Darien. *Shr.*
11. *Radiale*. Jamaica. *Shrub.*
12. *Recurvatum*. Straits of Magellan. *Shrub.*

SECT. III. *Flowers Radiate.*

1481. MADIA. *Recept.* nudum. *Papp.* 0. *Cal.* duplex, ext. 8 vel 10 phyll. æqualis interiore longior, int. polyphyll.
1. *Sativa*. Chili. *Ann.*
2. *Mellosa*. Do. *Ann.* 3. *Viscosa*. Do. *Ann.*

‡ 1497. BELLIS. *Recept.* nudum conicum. *Papp.* 0. *Cal.* hemisphæricus: squamis æqualibus. *Sem.* obovata.
1. *Perennis*. Engl. and other pts. of Eur. *Per.*
2. *Sylvestris*. Mountains of Italy. *Peren.*
3. *Annua*. Sicily, Spain, Montpellier. *Ann.*
* 4. *Stipitata*. (*Labill.*) * 6. *Graminea*. (*Do.*)
* 5. *Aculeata*. (*Do.*) * 7. *Ciliaris*. (*Do.*)
* 8. *Integrifolia*. N. America. (*Mich.* ii. 131.)
Sp. 4—7 from V. Diem. and V. Leeuwen's lands.

‡ 1512. MATRICARIA. *Recept.* nudum cylindraceoconicum. *Papp.* 0. *Cal.* planus imbricatus, squamis margine scariosis.
1. *Suaveolens*. Europe. *Ann.*
2. *Chamomilla*. Engl. and other pts. of Eur. *An.*
3. *Capensis*. Cape of Good Hope. *Peren.*

1514. LIDBECKIA, (LANCISIA of Persoon.) *Recept.* nudum. *Papp.* 0. *Sem.* angulata articulo styli infimo persistente. *Cor.* radii plurimæ. *Cal.* multipartitus.
1. *Lobata*. Cape. 3. *Turbinata*. Do. *Ann.*
2. *Pectinata*. Do. *Shr.* 4. *Bipinnata*. Do.

‡ 1510. CHRYSANTHEMUM. *Recept.* nudum. *Papp.* 0. *Cal.* hemisphæricus, imbric. squamis marginalibus membranaceis.
1. *Pinnatifidum*. Madeira on rocks. *Shrub.*
2. *Paludosum*. About Tunis. *Ann.*
3. *Atratum*. In the mountains of Switzerland, and meadows of Austria. *Peren.*
4. *Heterophyllum*. Piedmont. *Shrub.*
5. *Leucanthemum*. England and other parts of Europe. *Peren.*
6. *Montanum*. Montpellier, Silesia. *Peren.*
7. *Rotundifolium*. Mts. of Hungary. *Peren.*
8. *Ceratophylloides*. Mts. of Piedmont. *Per.*
9. *Graminifolium*. Montpellier. *Peren.*
10. *Coccineum*. Iberia. *Peren.*
11. *Tanacetifolium*. In the East. *Peren.*
12. *Monspeliense*. Montpellier. *Peren.*
13. *Archilleæ*. Italy. *Peren.*
14. *Argenteum*. In the East. *Peren.*
15. *Arcticum*. Kamschatka and N. Amer. *Per.*
16. *Carinatum*. Barbary, near Mogadore. *Ann.*
17. *Indicum*. East Indies. *Shrub.*
18. *Pectinatum*. Spain and Italy. *Peren.*
19. *Segetum*. Engl. Denm. Germ. France. *Ann.*
20. *Myconis*. Portugal, Spain, Italy. *Ann.*
21. *Italicum*. India. *Peren.*
22. *Umbrosum*. Mount Athos.
23. *Coronarium*. Candia, Sicily, Switz. *Ann.*
24. *Japonicum*. Japan. 26. *Glabratum*. Cape.
25. *Incanum*. Cape. *Shr.* 27. *Hirtum*. Cape.
* 28. *Maximum*. Pyrenees. (Decand. *Syn.* 286.)
* 29. *Lacustre*. Portugal. } *Brotero*, v.
* 30. *Pulverulentum*. Do. Spain. *An.* } i. p. 376.
* 31. *Procumbens*. China and Cochinchina. *Per.* (*Loureiro.*)
* 32. *Anomalum*. Spain. *Peren.* (*Lagasca.*)
* 33. *Broussonetii*. (*Persoon.*)
* 34. *Daucifolium*. (*Persoon.*)
* 35. *Radicans*. Granada. (*Cavanilles.*)
Under this genus Persoon includes the genus PYRETHRUM.

‡ 1511. PYRETHRUM. *Recept.* nudum. *Papp.* marginatus. *Cal.* hemisphæricus imbric. squamis acutiusculis margine scariosis.
1. *Frutescens*. Canaries. *Shrub.*
2. *Simplicifolium*. Curaçoa. *Ann.*
3. *Ptarmicæfolium*. Mount Caucasus. *Peren.*
4. *Scrotinum*. North America. *Peren.*
5. *Uliginosum*. Hungary and Spain. *Per.*
6. *Halleri*. Mountains of Switzerland. *Peren.*
7. *Alpinum*. Tops of the mts. of Styria, Carinthia, Tyrol, Salzb. Switz. Italy, Fra. *Per.*
8. *Balsamita*. In the East. *Peren.*
9. *Palustre*. Marshy parts of Armenia. *Per.*
10. *Pinnatifidum*. *Peren.*
11. *Macrophyllum*. Croatia, Sclavonia, the Bannat, and Wallachia. *Peren.*
12. *Corymbosum*. Thuringia, Silesia, Bohemia, Austria, Switzerland, and Siberia. *Peren.*
13. *Parthenium*. Engl. and other pts. of Eur. *Per.*
14. *Parthenifolium*. *Peren.*
15. *Caucasicum*. Caucasus. *Peren.*
16. *Fuscatum*. Tunis.
17. *Inodorum*. Engl. and other pts. of Eur. *Ann.*
18. *Maritimum*. Engl. and other pts. of Eur. *Per.*
19. *Parviflorum*. *Ann.* 20. *Multicaule*. Barbary.
21. *Trifurcatum*. Barbary, near Kerwan.
22. *Bocconi*. Spain. *Peren.*
23. *Orientale*. Georgia.
24. *Millefoliatum*. Siberia. *Peren.*
25. *Bipinnatum*. Siberia. *Peren.*

1525. COLUMELLIA. *Recept.* nudum favosum. *Papp.* margo dentatus. *Cal.* cylindricus imbric. *Corollulæ* radii indivisæ.
1. *Biennis*. Cape of Good Hope. *Bien.*

‡ 1492. DORONICUM. *Recept.* nudum. *Papp.* simp. *Cal.* squamæ duplis ordinis æquales, disco longiores. *Sem.* radii nuda pappoque destituta.

Class XIX. Syngenesia.

1. *Pardalianches.* England and other parts of Europe. *Peren.*
2. *Scorpioides.* Germany and Austria. *Peren.*
3. *Austriacum.* Aust. Carinthia, Salzburg. *Per.*
4. *Altaicum.* Altaian Mountains. *Peren.*
5. *Plantagineum.* Portugal and Spain. *Peren.*
6. *Glutinosum.* Mexico. *Shrub.*
* 7? *Nudicaule.* N. America. (*Mich.* ii. 121.)

1491. ARNICA. *Recept.* nudum. *Papp.* simpl. *Cal.* foliolis æqualibus. *Corollulæ* radii sæpius filamentis 5 absque antheris.

1. *Montana.* Europe. *Peren.*
2. *Piloselloides.* Cape of Good Hope.
3. *Hirsuta.* Arabia Felix. *Peren.*
4. *Oporina.* New Zealand. *Shrub.*
5. *Lanata.* 7. *Cordata.*
6. *Grandis.* *Shrub.* 8. *Ciliata.* Japan. *Per.*
9. *Scorpioides.* Switzerland, Austria. *Peren.*
10. *Doronicum.* South of Europe. *Shrub.*
11. *Glacialis.* Carinthia and Salzburg. *Peren.*
12. *Bellidiastrum.* South of Europe. *Peren.*
13. *Rotundifolia.* Barbary.
14. *Maritima.* Kamschatka and N. Amer. *Per.*
15. *Inuloides.* *Shr.* 20. *Palmata.*
16. *Tabularis.* *Shr.* 21. *Sinuata.* *Shrub.*
17. *Crocea.* *Peren.* 22. *Serrata.* *Shrub.*
18. *Crenata.* *Shrub.* 23. *Gerbera.* *Shrub.*
19. *Japonica.* 24. *Cornopifolia.*
* 25. *Cordata.* Austria. (Wulf. *in Roem. Arch.*)
* 26. *Corsica.* Corsica. (Deslongchamps, *Fl. Gal.*)
* 27. *Spinulosa.* Africa. (Lam. *Enc.*)
* 28. *Incana.* Monte Video. } Lam. *Enc.* ii. p.
* 29. *Peruviana.* Peru. } 315.

Sp. 4—7, 15—24 from the Cape; 8, 19, 20 from Japan.

‡ 1489. INULA. *Recept.* nudum. *Papp.* simpl. *Antheræ* basi in setas 2 desinentes.

1. *Helenium.* Engl. France, and Germ. *Per.*
2. *Odora.* Italy and France. *Peren.*
3. *Oculus Christi.* Austria. *Peren.*
4. *Britannica.* Bavaria, Germ. Denm. *Per.*
5. *Dysenterica.* Engl. and other pts. of Eur. *Per.*
6. *Undulata.* Egypt.
7. *Indica.* East Indies. *Ann.*
8. *Pulicarea.* Engl. and other pts. of Eur. *Ann.*
9. *Arabica.* Arabia and India. *Peren.*
10. *Spiræfolia.* Italy. 11. *Japonica.* Japan. *Per.*
12. *Squarrosa.* Italy and Montpellier. *Peren.*
13. *Viscosa.* Spain, Fran. Italy, Barbary. *Per.*
14. *Salicina.* Meadows N. of Europe. *Per.*
15. *Grandiflora.* Iberia. *Peren.*
16. *Glandulosa.* Georgia, at the Caspian. *Per.*
17. *Bubonium.* Austria, and at the R. Don. *Per.*
18. *Hirta.* France, Siberia, and Germany. *Per.*
19. *Suaveolens.* South of Europè. *Peren.*
20. *Vaillantii.* Switzerland and France. *Per.*
21. *Mariana.* North America. *Peren.*
22. *Dubia.* Japan.
23. *Orientalis.* Armenia. *Peren.*
24. *Germanica.* Saxony, Hungary, and Siberia. *Peren.*
25. *Ensifolia.* Austr. Germ. the Caspian. *Per.*
26. *Crithmifolia.* Engl. Europe, Africa. *Per.*
27. *Provincialis.* Provence. *Peren.*
28. *Montana.* Vienna, Montpel. Spain. *Per.*
29. *Æstuans.* Warm parts of America.
30. *Bifrons.* Italy, France, and Pyrenees. *Bien.*
31. *Cærulea.* Cape of Good Hope. *Shrub.*
32. *Aromatica.* Cape of Good Hope. *Shrub.*
33. *Saturejoides.* Hills near Vera Cruz. *Shr.*
34. *Pinifolia.* Cape of Good Hope. *Shrub.*
35. *Fœtida.* Malta. *Ann.*
* 36. *Caucasica.* Caucasus. (*Herb.* of Desf.)
* 37. *Crispa.* Egypt. (Vent. *H. Cels.*)
* 38. *Africana.* Cape of G. H. *Ann.* (Lam. *Enc.*)
* 39. *Serrata.* New Spain. *Shrub.* (*Lagasca.*)
* 40. *Primulæfolia.* St Domingo. (Lam. *Enc.*)
* 41. *Gossypina.* Carolina and Florida. } *Mich.*
* 42. *Graminifolia.* Carol. and Florida. } ii. 122.
* 43. *Argentea.* Pennsylvania. }

‡ 1482. ERIGERON. *Recept.* nudum. *Papp.* pilosus. *Cor.* radii lineares, angustissimæ.

1. *Graveolens.* Montpel. and the East. *Ann.*
2. *Glutinosum.* Spain and S. of France. *Per.*
3. *Canescens.* *Peren.*
4. *Carolinianum.* Carolina. *Peren.*
5. *Nervosum.* North America. *Peren.*
6. *Canadense.* Engl. Canada, Virginia. *Ann.*
7. *Bonariense.* South America. *Ann.*
8. *Linifolium.* *Ann.*
9. *Sumatrense.* Sumatra.
10. *Sericeum.* Java.
11. *Strigosum.* Pennsylvania.
12. *Heterophyllum.* Pennsylvania.
13. *Chinense.* China. *Ann.*
14. *Japonica.* Japan. *Ann.*
15. *Jamaicense.* Jamaica. *Ann.*
16. *Rivulare.* Jamaica and Hispaniola. *Ann.*
17. *Scabrum.* Cape of Good Hope.
18. *Philadelphicum.* Canada. *Peren.*
19. *Purpureum.* Hudson's Bay. *Peren.*
20. *Bellidifolium.* Pennsylvania. *Peren.*
21. *Villarsii.* Dauphiny and Piedmont. *Per.*
22. *Acre.* Engl. and other pts. of Eur. *Peren.*
23. *Alpinum.* Scotl. Switz. and Carniola. *Per.*
24. *Uniflorum.* Lapl. Switz. Salz. Dalm. *Per.*
25. *Gramineum.* Siberia. *Peren.*
26. *Camphoratum.* Virginia and Pennsyl. *Ann.*
27. *Tuberosum.* France and Syria. *Peren.*
28. *Hirtum.* Cape. 30. *Incisum.* Cape.
29. *Scandens.* Japan. 31. *Pinnatifidum.* Cape.
* 32. *Pinnatum.* Cape of Good Hope.
* 33? *Graveolens.* France and the East. *Ann.*
* 34. *Divaricatum.* Illinois. } *Mich.* ii.
* 35. *Hyssopifolium.* Hudson's Bay. } p. 123.
* 36. *Nudicaule.* Carolina. }
* 37. *Scandens.* Japan. (*Thunb.*)
* 38. *Lævigatum.* Cayenne. (*Richard.*)
* 39. *Pappocroma.* V. Diem. Isl. (*Labillard.*)
* 40. *Myosotis.* Straits of Magellan. (*Juss.*)
* 41. *Diffusum.* Monte Video. (*Herb.* of Juss.)
* 42. *Longifolium.* N. America. (Desf. *Cat.*)
* 43. *Contortum.* (Desf. *Cat.*)

‡ 1486. SOLIDAGO. *Recept.* nudum. *Papp.* simpl. *Cor.* radii circiter 5. *Cal.* squamæ imbricatæ, clausæ.

1. *Spuria.* St Helena. *Shrub.*
2. *Leucadendron.* St Helena. *Shrub.*
3. *Arborescens.* New Zealand. *Shrub.*
4. *Canadensis.* Virginia and Canada. *Peren.*
5. *Procera.* 11. *Aspera.*
6. *Serotina.* 12. *Altissima.*
7. *Gigantea.* 13. *Rugosa.*
8. *Ciliaris.* 14. *Scabra.*
9. *Reflexa.* 15. *Nemoralis.*
10. *Lateriflora.* 16. *Patula.*

17. *Ulmifolia.*
18. *Arguta.*
19. *Juncea.*
20. *Elliptica.*
21. *Sempervirens.*
22. *Odora.*
23. *Bicolor.*
24. *Petiolaris.*
25. *Stricta.*
26. *Lanceolata.*
27. *Cæsia.*
28. *Hispida.*
29. *Lævigata.*
30. *Mexicana.*
31. *Viminea.*
32. *Flexicaulis.*
33. *Ambigua.*
34. *Alpestris.* Mountains of Carpathia, Austria, and Bohemia. *Peren.*
35. *Virgaurea.* Engl. and other pts. of Eur. *Per*
36. *Cambrica.* Wales. *Peren.*
37. *Multiradiata.* Labrador. *Peren.*
38. *Minuta.* Pyrenees. *Peren.*
39. *Rigida.*
40. *Noveboracensis.*
* 41. *Virgata.* Carolina. (*Mich.* ii. p. 117.)
* 42. *Retrorsa.* Carolina. Do.
* 43. *Glomerata.* Carolina. Do.
* 44. *Multiflora.* North America.
* 45. *Integrifolia.* (*Persoon*, ii. p. 449.)
* 46. *Decurrens.* Near Canton. (*Loureiro.*)
* 47. *Cantoniensis.* Near Canton. (*Loureiro.*)
* 48. *Littoralis.* Coasts of Tuscany. (*Savi.*)

Sp. 5—32, 39, 40 from North America.

‡ 1488. CINERARIA. *Recept.* nudum. *Papp.* simpl. *Cal.* simpl. polyphyll. æqualis.

1. *Nivea.* *Shrub.*
2. *Undulata.* *Ann.*
3. *Alata.* *Shrub.*
4. *Perfoliata.*
5. *Denticulata.*
6. *Serrata.*
7. *Elongata.*
8. *Erosa.*
9. *Sonchifolia.*
10. *Incisa.*
11. *Pinnatifida.*
12. *Bipinnata.*
13. *Filifolia.*
14. *Cacalioides.*
15. *Lineata.*
16. *Americana.* South America. *Shrub.*
17. *Repanda.* New Zealand. *Shrub.*
18. *Rotundifolia.* New Zealand. *Shrub.*
19. *Geifolia.* Cape of Good Hope. *Shrub.*
20. *Aurita.* Madeira. *Peren.*
21. *Cruenta.* Canary Islands. *Per.*
22. *Cymbalarifolia.* 23. *Lobata.* *Shrub.*
24. *Multiflora.* Hills of Canary Islands. *Per.*
25. *Tussilaginis.* Teneriffe. *Ann.*
26. *Præcox.* Mexico. *Shrub.*
27. *Malvæfolia.* Canaries and St Miguel. *Per.*
28. *Glabra.* Jamaica. *Shrub.*
29. *Discolor.* Jamaica. *Shrub.*
30. *Coronata.* Cape of Good Hope. *Shrub.*
31. *Sibirica.* Siberia, in the East, Hungary, and the Pyrenees. *Per.*
32. *Glauca.* Siberia. *Per.*
33. *Palustris.* Engl. and other pts. of Eur. *Per.*
34. *Campestris.* Sweden, Austria, France, Croatia, and Siberia. *Bien.*
35. *Aurantiaca.* France, Italy, Carinthia. *Per.*
36. *Integrifolia.* Engl. Austria, Switz. *Per.*
37. *Longifolia.* Austria, Italy, France. *Bien.*
38. *Crispa.* Austria, Styria, and Salzburg. *Per.*
39. *Cordifolia.* Aust. Switz. Italy, France. *Per.*
40. *Alpina.* Sweden, Switz. and Austria. *Per.*
41. *Aurea.* Siberia. *Per.* 42. *Japonica.* Japan.
43. *Maritima.* Coasts of Europe. *Peren.*
44. *Bicolor.* *Shr.* 45. *Canadensis.* Canada. *Per.*
46. *Aspera.*
47. *Cappillacea.*
48. *Minuta.* Spain. *An.*
49. *Linifolia.* *Shr.*
50. *Humifusa.* *Per.*
51. *Viscosa.* *Bien.*
52. *Purpurata.* *Shr.*
53. *Scapiflora.* *Per.*
54. *Lanata.* Canaries. *Shrub.*
55. *Amelloides.* Cape of Good Hope. *Shrub.*
* 56. *Incana.* South of Jamaica. *Shrub.*
* 57. *Laciniata.* Jamaica.
* 58. *Caspica.* (*Bieberstein.*)
* 59. *Heterophylla.* St Domingo. (*Ortega.*)

Sp. 1—15, 22, 23, 46, 47, 49—53 from the Cape.

‡ 1484. SENECIO. *Recept.* nudum. *Papp.* simpl. *Cal.* cylindricus, calyculatus: squamis apice sphacelatis.

1. *Reclinatus.* *Shr.*
2. *Angustifolius.* *Shr.*
3. *Mucronatus.* *Shr.*
4. *Niveus.* *Shrub.*
5. *Hieracifolius.* North America. *Ann.*
6. *Purpureus.* *Per.*
7. *Cernuus.* E. Indies. *Ann.*
8. *Erubescens.* *Ann.*
9. *Persicifolius.* *Shr.*
10. *Biflorus.* Arabia. *Shr.*
11. *Paniculatus.* *Shr.*
12. *Bidentatus.* *Shr.*
13. *Scaber.*
14. *Vestitus.* *Shr.*
15. *Virgatus.* *Shr.*
16. *Divaricatus.* China.
17. *Croaticus.* Croatia. *Peren.*
18. *Pseudo-China.* East Indies. *Peren.*
19. *Japonicus.* Japan. *Peren.*
20. *Vulgaris.* Engl. and other parts of Eur. *Ann.*
21. *Peucedanifolius.* *Shr.*
22. *Arabicus.* *Bien.*
23. *Verbenæfolius.* *Ann.*
24. *Triflorus.* *Ann.*
25. *Ægypticus.* *Ann.*
26. *Australis.* N. Zeal.
27. *Lautus.* New Zealand.
28. *Crassifolius.* S. of France and Italy. *Ann.*
29. *Humilis.* Fields of Barbary. *Ann.*
30. *Leucanthemifolius.* Barb. near La Calle. *Ann.*
31. *Auritus.* Deserts of Barbary. *Ann.*
32. *Giganteus.* Near Algiers. *Peren.*
33. *Lividus.* Spain. *Ann.*
34. *Telephifolius.* Cape of Good Hope. *Ann.*
35. *Trilobus.* Spain. *Ann.*
36. *Cinerascens.* Cape. *Shr.* 37. *Javanicus.* Java.
38. *Viscosus.* Britain and other pts. of Eur. *Ann.*
39. *Sylvaticus.* Engl. and other pts. of Eur. *Ann.*
40. *Coronopifolius.* Spain. *Ann.*
41. *Multifidus.* Java.
42. *Nebrodensis.* Sicily, Spain, and Pyrenees. *Ann.*
43. *Glaucus.* *Bien.*
44. *Varicosus.* *Ann.*
45. *Hastatus.* *Per.*
46. *Squamosus.*
47. *Incisus.*
48. *Carnosus.*
49. *Abruptus.*
50. *Lyratus.*
51. *Spirææfolius.*
52. *Pubigerus.*
53. *Vernalis.* Hungary. *Ann.*
54. *Montanus.* Mountains of Salzburg. *Ann.*
55. *Rupestris.* Hungary and Croatia. *Peren.*
56. *Dentatus.* *Ann. Bien.* 57. *Venustus.* *Bien.*
58. *Elegans.* *Ann. Bien.*
59. *Squalidus.* France and England. *Ann.*
60. *Erucifolius.* South of Europe. *Peren.*
61. *Speciosus.* China. *Per.* 62. *Erosus.* Cape. *Per*
63. *Uniflorus.* Mts. of Vallais and Piedmont. *Per*
64. *Incanus.* Switz. Aust. Pyrenees, Montp. *Per*
65. *Carniolicus.* Mts. of Styria and Carniola. *Per*
66. *Parviflorus.* Piedm. *Per.*
67. *Muricatus.*
68. *Lævigatus.*
69. *Grandiflorus*
70. *Abrotanifolius.* Mountains of Salzburg, th Pyrenees, Carinthia, &c. *Peren.*
71. *Myrrhifolius.*
72. *Diffusus.*
73. *Canadensis.* Canada.
74. *Delphinifolius.* Barbar
75. *Tenuifolius.* Engl. Germ. and Austria. *Pe*
76. *Jacobæa.* Engl. and other parts of Eur. *Pe*
77. *Aquaticus.* England, Germ. and Austria. *Pe*
78. *Auriculatus.* Arabia Felix.
79. *Aureus.* Virginia and Canada. *Peren.*
80. *Balsamitæ.* North America. *Peren.*

87. *Tradescanti.* *Per.*
88. *Recurvatus.* *Per.*
89. *Floribundus.* *Per.*
90. *Novi Belgii.* *Per.*
91. *Spectabilis.* *Per.*
92. *Serotinus.* *Per.*
93. *Tardiflorus.* *Per.*
94. *Junceus.* *Per.*
95. *Lanceolatus.* *Per.*
96. *Dracunculoides.* *P.*
97. *Fragilis.* *Per.*
98. *Miser.*
99. *Divergens.* *Per.*
100. *Diffusus.* *Per.*
101. *Pendulus.* *Per.*
102. *Aurantius.* Vera Cruz. *Ann.*
103. *Pinnatus.* New Spain. *Peren.*
* 104. *Phlogopappus.* *Shr.*
* 105. *Stellulatus.* *Shr.*
* 106. *Myrsinoides.* *Shr.*
* 107. *Viscosus.* *Shr.*
* 108. *Argophyllus.* *Shr.*
* 109. *Ramulosus.*
* 110. *Glandulosus.*
* 111. *Aculeatus.*
* 112. *Lepidophyllus.*
* 113. *Filifolius.*
* 114. *Microphyllus.* *Shr.*
* 115. *Uniflorus.* Near L. Mistassins.
* 116. *Surculosus.* Woods of Carol.
* 117. *Subulatus.* Pennsylv. Carolina.
See Mich. *Fl. Am.* ii. p. 110, &c.
* 118. *Rubricaulis.* North America.
* 119. *Thyrsifolius.* Virginia? (*Hoffman.*)
* 120. *Longifolius.* North America.

Sp. 1—14, 21, 22, from the Cape. Sp. 28—45, 48—60, 77—101, from North America. Sp. 104—112, from N. Holl. (See *Labillard.*) Sp. 113, 114, see Vent. *Malm.*

1501. Boebera. *Recept.* nudum. *Papp.* pilosus. *Cal.* dupl. ext. polyphyll. int. octophyll.
1. *Chrysanthemoides.* Carol. Florida, Mex. *An.*

1487. Mutisia. *Recept.* nudum. *Papp.* plumosus. *Cal.* *cylindricus* imbric. *Cor.* disci 3-fidæ.
1. *Clematis.* Peru and N. Granada. *Shr.* *Per.*
2. *Peduncularis.* Peru. *Shrub.*
3. *Viciæfolia.* Peru. *Shrub.*
4. *Ilicifolia.* Chili. *Shrub.*
5. *Runcinata.* South America. *Shrub.*
6. *Sinuata.* Chili. *Shrub.*
7. *Subspinosa.* Peru. *Shrub.*
8. *Sagittata.* Chili. *Shrub.*
9. *Decurrens.* Do. *Shr.* 10. *Inflexa.* Do. *Shr.*
11. *Linearifolia.* Chili. *Shrub.*
* 12. *Grandiflora.* Mt. of Quindiu South America. (Humboldt. *Plant. Equinoct.*)

1498. Bellium. *Recept.* nudum. *Sem.* conica corona paleacea 8-phylla, *pappo*que ristata. *Cal.* foliolis æqualibus.
1. *Bellidioides.* Italy, near Rome. *Ann.*
2. *Minutum.* Beside springs in the East. *Ann.*

1520. Actinea, or Actinella. *Recept.* nudum. *Papp.* polyphyll. paleaceus, paleis aristatis. *Cal.* polyphyll. æqualis.
1. *Heterophylla.* Buenos Ayres. *Shrub.*

1502. Tagetis. *Recept.* nudum. *Papp.* aristis 5, erectis. *Cal.* simp. 1-phyll. 5-dentatus, tubulosus. *Flosculi* radii 5, persistentes.
1. *Lucida.* Mexico. *Peren.*
2. *Patula.* Do. *Ann.* 3. *Erecta.* Do. *Ann.*
4. *Elongata.* Warm parts of America. *Ann.*
5. *Minuta.* Chili. *Ann.*
6. *Caracasana.* Caraccas. *Ann.*
7. *Tenuifolia.* Peru. *Ann.*
8. *Micrantha.* New Spain. *Ann.*
* 9. *Bonariensis.* Buenos Ayres. (*Commers.*)

1496. Helenium. *Recept.* nudum: *Radii* paleaceum. *Papp.* 5 aristatus. *Cal.* 1-phyll. multipart. *Cor.* radii semitrifidæ.
1. *Autumnale.* North America. *Peren.*
2. *Pubescens.* North America. *Peren.*
3. *Quadridentatum.* Lousiana. *Peren.* *Ann.*

1505. Pectis. *Recept.* nudum. *Papp.* 3 seu 5-aristatus. *Cal.* 5-phyll. *Cor.* radii 5.
1. *Humifusa.* Guadaloupe, Santa Cruz. *Ann.*
2. *Prostrata.* New Spain. *Ann.*
3. *Ciliaris.* Hispaniola. *An.* 4. *Linifolia.* Jam. *An.*
5. *Punctata.* Hispaniola. *Ann.*

1504. Schkuhria. *Recept.* nudum. *Pappus* paleaceus 5-phyll. *Cal.* 5-phyll. *Cor.* radii solitaris.
1. *Abrotanoides.* Mexico. *Ann.*

1503. Heterospermum. *Recept.* nudum. *Sem.* exteriora compressa margine membranacea, int. oblonga biaristata. *Cal.* dup. ext. 4-part. int. polyphyll.
1. *Pinnatum.* N. Spain. *Ann.* 2. *Ovatum.* Peru.

1513. Boltonia. *Recept.* favosum hemisphæricum. *Papp.* dentato-aristatus subbicornis. *Cor.* radii plurimæ. *Cal.* imbric.
1. *Asteroides.* Virginia and Pennsylvania. *Per.*
2. *Glastifolia.* Virginia and Pennsylvania. *Per.*

1506. Leysera. *Recept.* subpaleaceum. *Papp.* paleaceus; disci etiam plumosus. *Cal.* scariosus.
1. *Ciliata.* *Shrub.*
2. *Gnaphalodes.* *Shr.*
3. *Callicornia.* *Shr.*
4. *Incana.* *Shrub.*
5. *Arctotoides.* *Shr.*
6. *Squarrosa.* *Shr.*
7. *Pilosella.*
8. *Ovata.*
9. *Picta.*
10. *Polifolia.* *Shrub.*

All from the Cape of Good Hope.

1527. Siegesbeckia. *Recept.* paleaceum. *Papp.* 0. *Cal.* exter. 5-phyll. proprius, patens. *Radius* dimidiatus.
1. *Orientalis.* E. Indies, China, Mexico. *Ann.*
2. *Iberica.* Iberia. *Ann.*
3. *Flosculosa.* Peru. *Ann.*
* 4. *Laciniata.* Carolina. (*Exo. Bot.*)

1526. Eclipta. *Recept.* paleaceum. *Papp.* 0. *Cor.* disci 4-fidæ.
1. *Erecta.* Virgin. Surin. Egypt, Asia Min. *An.*
2. *Punctata.* St Domingo and Martinique. *An.*
3. *Latifolia.* East Indies. *Ann.*
4. *Prostrata.* Do. *Ann.* 5. *Undulata.* Do. *Ann.*
6. *Procumbens.* Carolina.
7. *Brachypoda.* Carolina.

‡ 1517. Anthemis. *Recept.* paleaceum. *Papp.* 0. seu margo membranaceus. *Cal.* hemisphæricus, subæqualis. *Flosculi* radii plures quam 5.
1. *Cota.* Fields in Italy. *Ann.*
2. *Altissima.* Fields of Italy; Spain, France. *Ann.*
3. *Punctata.* Fissures of rocks in Mt. Atlas. *Shr.*
4. *Maritima.* Engl. Montpel. and Italy. *Peren.*
5. *Clavata.* Fields of Barbary. *Ann.*
6. *Tomentosa.* Coasts of Greece and Asia Min.
7. *Pubescens.* Spain and S. of France. *Peren.*
8. *Australis.* Sea coasts S. of France. *Peren.*
9. *Mixta.* Italy and France. *Ann.*
10. *Coronopifolia.* Spain.
11. *Alpina.* Mts. of Tyrol, Austria, &c. *Per.*
12. *Carpatica.* Carpathian mountains. *Peren.*
13. *Corymbosa.* Mountains of Salzburg. *Peren.*
14. *Chia.* Chio. *Ann.*
15. *Nobilis.* Engl. and S. of Europe. *Peren.*
16. *Arvensis.* Engl. and N. Amer. *Bien.* *Ann.*
17. *Austriaca.* Austria, Styria, S. of Hungary, and Italy. *Ann.*
18. *Cotula.* Engl. and other pts. of Eur. *Ann.*
19. *Fuscata.* Fields of Portugal. *Ann.*
20. *Peregrina.* Piedmont. *Ann.*
21. *Nicæensis.* Near Nice.
22. *Pedunculata.* Fields of Barbary.

23. *Montana.* Italy and the Pyrenees. *Peren.*
24. *Pontica.* Pontus. *Peren.*
25. *Pyrethrum.* Arabia, Syria, Candia, Italy, Germany, Bohemia, and Montpellier. *Per.*
26. *Artemisiæfolia.* China. *Shrub.*
27. *Occidentalis.* South America.
28. *Buphthalmoides.* Peru. *Ann.*
29. *Garcini.* Persia. *Shrub.*
30. *Repanda.* Spain and Portugal.
31. *Odorata.* Cape of Good Hope. *Shrub.*
32. *Trilobata.* Mexico. *Peren.*
33. *Monantha.* Tauria.
34. *Globosa.* Mexico. *Peren.*
35. *Marschalliana.* Mount Caucasus. *Peren.*
36. *Valentina.* S. of France and Spain. *Ann.*
37. *Discoidea.* Italy and Greece. *Peren.*
38. *Tinctoria.* England, Germany, Sweden. *Per.*
39. *Arabica.* Fields of Barbary. *Ann.*
*40. *Saxatilis.* Auvergne. (Decand. *Syn.*)
*41. *Fruticulosa.* Beyond the Caspian. (*Bieberst.*)
*42. *Hispanica.* Spain? (*Zuccagni.*)

‡ 1519. ACHILLEA. *Recept.* paleaceum. *Papp.* 0. *Cal.* ovatus imbric. *Flosculi* radii circiter 4.

1. *Lingulata.* Mts. in the E. of Hungary. *Per.*
2. *Herbarota.* Mts. of Fran. and Piedm. *Per.*
3. *Ptarmica.* Engl. Asia, and America. *Per.*
4. *Cristata.* Italy. *Peren.*
5. *Ageratum.* France, Spain, and Italy. *Per.*
6. *Alpina.* Switz. Savoy, and Siberia. *Per.*
7. *Serrata.* Switzerland. *Peren.*
8. *Coronopifolia.* In the East. *Peren.*
9. *Clavennæ.* Switzerland, Salzburg, Carinthia, Austria, and Carniola. *Peren.*
10. *Gerberi.* Siberia. *Per.* 11. *Pilosa.* *Per.*
12. *Impatiens.* Siberia. *Peren.*
13. *Pectinata.* Hungary. *Peren.*
14. *Squarrosa.* *Peren.*
15. *Teretifolia.* Galatia. *Peren.*
16. *Falcata.* The East. *Peren.*
17. *Tenuifolia.* The East. *Shrub.*
18. *Santalina.* Do. *Per.* 19. *Anthemoides.* *Per.*
20. *Atrata.* Switz. Italy, and Austria. *Peren.*
21. *Moschata.* Switz. Carinthia, and Italy. *Per.*
22. *Nana.* Switz. Italy, and France. *Peren.*
23. *Cretica.* Candia. *Peren.*
24. *Ægyptiaca.* Egypt, the East, Astracan. *Per.*
25. *Auriculata.* In the East. *Peren.*
26. *Macrophylla.* Switz. Italy, and France. *Per.*
27. *Pauciflora.* The East and Spain. *Peren.*
28. *Aurea.* In the East. *Peren.*
29. *Eupatorium.* Near the Caspian. *Per. Shr.*
30. *Compacta.* *Shrub.*
31. *Pubescens.* The East. *Peren.*
32. *Crithmifolia.* Mountains of Hungary. *Per.*
33. *Tanacetifolia.* Switzerland, Salzburg, Italy, and Dauphiny. *Peren.*
34. *Distans.* Bannat, Italy, and France. *Per.*
35. *Magna.* South of Europe. *Peren.*
36. *Millefolium.* Engl. Asia, N. Amer. *Per.*
37. *Micrantha.* Cappadocia. *Peren.*
38. *Tomentosa.* Vallais, France, Italy, Spain, and Tartary. *Peren.*
39. *Ochroleucra.* *Peren.*
40. *Microphylla.* Spain. *Peren.*
41. *Ligustica.* Hills of Italy. *Peren.*
42. *Nobilis.* Switzerland, Germany, Bohemia, Hungary, and Tartary. *Peren.*
43. *Odorata.* Carinthia, France, Switz. *Peren.*
44. *Setacea.* Saxony, Switz. and Hung. *Per.*
45. *Abrotanifolia.* In the East. *Peren.*
*46. *Leucanthema.* Caucasus? (*Persoon.*)
*47? *Imbricata.* In the East. } Vent. *H. Cels.*
*48. *Asplenifolia.* N. America. } Vent. *H. Cels.*

Class XIX. Syngenesia.

1493. TETRAGONOTHECA. *Recept.* paleaceum. *Papp.* 0. *Cal.* 1-phyll. 4-gon. 4-part.

1. *Helianthoides.* Virginia and Carolina. *Per.*

1494. XIMENESIA. *Recept.* paleaceum. *Papp.* 0. *Sem.* radii nuda emarginata, disci margine alata. *Cal.* polyphyll. subæqualis.

1. *Encelioides.* Mexico. *Peren.*

1528. PHÆTUSA. *Recept.* paleaceum. *Sem.* hispida. *Papp.* 0. *Cal.* imbric. *Flosculi* radii 1-3.

1. *Americana.* North America. *Peren.*

1499. GEORGINA, or DAHLIA. *Recept.* paleaceum. *Papp.* 0. *Cal.* dupl. ext. polyphyll. int. 1-phyll. 8-part.

1. *Purpurea.* Mexico. *Peren.*
2. *Rosea.* Do. *Per.* 3. *Coccinea.* Do. *Per.*

1508. RELHANIA. *Recept.* paleaceum. *Papp.* membranaceus cylindraceus brevis. *Cal.* imbric. scariosus. *Cor.* radii plurimæ.

1. *Squarrosa.* *Shr.*
2. *Genistifolia.* *Shr.*
3. *Microphylla.* *Shr.*
4. *Passerinoides.* *Shr.*
5. *Viscosa.* *Shr.*
6. *Laxa.* *Ann.*
7. *Pedunculata.*
8. *Lateriflora.*
9. *Cuneata.* *Shr.*
10. *Virgata.* *Shr.*
11. *Paleacea.* *Shr.*
12. *Santolinoides.* *Shr.*
13. *Tomentosa.* *Shr.*
14. *Reflexa.* *Shr.*
15. *Pungens.* *Shr.*
16. *Decussata.* *Shr.*
17. *Trinervis.*
18. *Quinquenervis.*
19. *Pinnata.*

All from the Cape of Good Hope.

1531. PASCALIA. *Recept.* paleaceum. *Sem.* drupacea. *Papp.* margo dentatus. *Cal.* imbric.

1. *Glauca.* Chili. *Peren.*

1532. BUPHTHALMUM. *Recept.* paleaceum. *Papp.* margo obsoletus. *Sem.* latera, præsertim radii marginata.

1. *Frutescens.* Jamaica and Virginia. *Shrub.*
2. *Arborescens.* Bahama Islands. *Shrub.*
3. *Lineare.* Peru. *Shrub.*
4. *Sericeum.* Teneriffe. *Shrub.*
5. *Flosculosum.* Asia Minor. *Shrub.*
6. *Odorum.* Kingdom of Morocco. *Shrub.*
7. *Spinosum.* Narbonne, Spain, Italy, and the East. *Ann. Bien.*
8. *Graveolens.* Egypt. *Per.*
9. *Pratense.* Egypt. *Ann.*
10. *Aquaticum.* Portug. Marseilles, Candia. *Ann.*
11. *Maritimum.* Shores of the Mediterranean. *Per.*
12. *Durum.* Cape of Good Hope. *Shrub.*
13. *Repens.* Dominica. *Peren.*
14. *Salicifolium.* Aust. Switz. and France. *Per.*
15. *Grandiflorum.* Aust. Italy, Montpellier. *Per.*
16. *Speciosissimum.* Germany. *Peren.*
17. *Cordifolium.* Bannat, Croatia, Cappadocia. *Per.*
18. *Uniflorum.* Norfolk Island.
19. *Helianthoides.* North America. *Peren.*
20. *Ramosum.* Arabia Felix.
*21. *Bonariense.* Buenos Ayres. (*Commers.*)
*22. *Oleraceum.* China, Cochinch. *Per.* (*Lour.*)
*23. *Scabrum.* Mexico. (*Cavanilles.*)

1490. RHANTERIUM. *Recept.* paleaceum. *Papp.* setis 4 seu 6 apice crassiusculis plumosis compo-

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situs. *Cal.* cylindricus imbric. *Sem.* radii nuda pappoque destituta.
1. *Suaveolens.* Coasts of Tunis. *Shrub.*

1518. Sanvitalia. *Recept.* paleaceum. *Sem.* radii 3-aristata, marginis nuda verrucosa, centri alata. *Cal.* imbric. planus.
1. *Procumbens.* Mexico. *Ann.*
2. *Helianthoides.* Peru.

1523. Amellus. *Recept.* paleaceum. *Papp.* simpl. *Cal.* imbric. *Corollulæ* radii indivisa.
1. *Lychnitis.* Cape of Good Hope. *Shrub.*
2. *Diffusus.* Straits of Magellan. *Shrub.*
3. *Annuus.* *Ann.*

1521. Tridax. *Recept.* paleaceum. *Papp.* multiradiatus simpl. *Cal.* imbric. cylind. *Cor.* radii 3-part.
1. *Procumbens.* Vera Cruz.

1507. Rosenia. *Recept.* paleaceum. *Papp.* cappillari-paleaceus. *Cal.* imbric. scariosus.
1. *Glandulosa.* Cape of Good Hope. *Shrub.*

1529. Verbesina. *Recept.* paleaceum. *Papp.* aristatus. *Cal.* 2-plici ordine. *Flosculi* radii circiter 5.
1. *Alata.* Curaçoa and Surinam. *Peren.*
2. *Chinensis.* China. *Shrub.*
3. *Virginica.* Virginia.
4. *Virgata.* Mexico. *Peren.*
5. *Mutica.* East Indies. *Ann.*
6. *Boswallia.* Do. *Ann.* 7. *Gigantea.* Do. *Shr.*
8. *Pinnatifida.* Mexico. *Peren.*
9. *Siegesbeckia.* Virginia and Carolina. *Per.*
10. *Serrata.* Mexico. *Peren.*
11. *Ceanothifolia.* Mexico at Acapulco.
12. *Biflora.* E. Ind. 13. *Calendulacea.* Ceylon.
14. *Nodiflora.* Caribbee Islands. *Ann.*
15. *Dichotoma.* East Indies. *Ann.*
16. *Fruticosa.* South America. *Shrub.*
*17. *Atriplicifolia.* *Shrub.*
*18. *Brasiliana.* (*Vandelli.*)

1500. Schlechtendalia, or Adenophyllum. *Recept.* paleaceum. *Papp.* aristis 5 erectis. *Cal.* dupl. ext. polyphyll. setosus; int. polyphyll. æqualis. *Flores* disci 6-vel 8-fidi.
1. *Glandulosa.* Mexico. *Peren.*

1530. Galinsogea. *Recept.* paleaceum. *Papp.* polyphyll. paleaceus. *Cal.* imbric.
1. *Parviflora.* Peru. *Ann.*
2. *Trilobata.* New Spain. *Ann.*
*3? *Quadriradiata.* Peru. (*Fl. Per.* Syst.)

1509. Zinnia. *Recept.* paleaceum. *Papp.* aristis 2, erectis. *Cal.* ovato-cylindricus, imbric. *Flosculi* radii 5, persistentes, integri.
1. *Pauciflora.* Peru. *Ann.*
2. *Multiflora.* Louisiana. *Ann.*
3. *Verticillata.* Mexico. *Ann.*
4. *Elegans.* Do. *Ann.* 5. *Tenuiflora.* Do. *An.*

1522. Balbisia. *Recept.* paleacum. *Papp.* sessilis plumosus. *Cal.* simpl. 8-phyll. *Cor.* radii 3-part.
1. *Elongata.* Mexico. *Ann.*
*2. *Canescens.* St Martha, (*Richard.*)

1524. Starkea. *Recept.* hirsutum. *Papp.* sessilis pilosus. *Cal.* imbric.
1. *Umbellata.* Cold mts. of Jamaica. *Peren.*

Frustranea.

1545. Gorteria. *Recept.* nudum. *Papp.* lanatus. *Cor.* radii ligulatæ. *Cal.* 1-phyll. squamis imbricatis tectus.
1. *Personata.* *Ann.* 2. *Diffusa.*
3. *Integrifolia.* *Shr.* 6. *Cernua.* *Shrub.*
4. *Rigens.* *Shrub.* 7. *Ciliata.* *Shrub.*
5. *Pectinata.* *Shrub.*

‡ 1548. Centaurea. *Recept.* setosum. *Papp.* simpl. *Cor.* radii infundib. longiores, irregulares.
1. *Crupina.* Switzerland, Tuscany, France, the East, and north of Africa. *Ann.*
2. *Crupinoides.* Deserts of Barbary. *Ann.*
3. *Arenaria.* At the Wolga. *Ann.*
4. *Glauca.* Caucasus.
5. *Moschata.* Greece. *Ann.*
6. *Suaveolens.* In the East. *Ann.*
7. *Verbascifolia.* Arabia Felix. *Shrub.*
8. *Erucifolia.* *Peren.*
9. *Lippii.* Egypt and Barbary. *Ann.*
10. *Africana.* Hills about Algiers. *Peren.*
11. *Alpina.* Mount Baldo. *Peren.*
12. *Centaurium.* Alps. *Peren.*
13. *Ruthenica.* Siberia. *Peren.*
14. *Nana.* Near Tlemsen. *Peren.*
15. *Phrygia.* Switz. Aust. Finland, Germ. *Per*
16. *Salicifolia.* Mount Caucasus. *Peren.*
17. *Austriaca.* Austria and Hungary. *Peren.*
18. *Pectinata.* S. of France and Hungary. *Per*
19. *Capillata.* Siberia and Spain.
20. *Involucrata.* Mount Atlas.
21. *Uniflora.* South of Europe. *Peren.*
22. *Flosculosa.* Italy. *Peren.*
23. *Tricocephala.* At the Wolga. *Peren.*
24. *Linifolia.* Spain and Italy. *Peren.*
25. *Hyssopifolia.* Spain. *Shrub.*
26. *Coronopifolia.* Iberia and Armenia. *Ann.*
27. *Nigra.* England, Switzerland, Austria, Germany, and Montpellier. *Bien.*
28. *Nigrescens.* Hungary and Austria. *Per.*
29. *Triumfetti.* Mount Cenis. *Shrub.*
30. *Cheiranthifolia.* Armenia. *Per.*
31. *Ochloreuca.* Mount Caucasus and Iberia. *Per.*
32. *Atrata.* Armenia. *Per.*
33. *Axillaris,* or *Seusana.* Austria, Hungary, Switzerland, and south of France. *Per.*
34. *Montana.* Switz. Aust. and Germ. *Per.*
35. *Cyanus.* Engl. and other pts. of Eur. *Ann.*
36. *Virgata.* Armenia.
37. *Ovina.* Mount Caucasus.
38. *Paniculata.* Europe and Siberia.
39. *Spinosa.* Candia. *Shrub.*
40. *Ragusina.* Candia. *Per.*
41. *Cineraria.* Italy. *Per.*
42. *Cinerea.* Italy. *Per.*
43. *Dealbata.* Iberia. *Per.*
44. *Argentea.* Candia. *Per.*
45. *Sempervirens.* Portugal. *Per.*
46. *Coriacea.* Hungary. *Per.*
47. *Scabiosa.* Engl. and other pts. of Eur. *P*
48. *Tatarica.* Tartary. *Per.* 49. *Stoebe.* Austr
50. *Pulcherrima.* The East. *Per.*
51. *Balsamita.* Armenia.
52. *Macrocephala.* Iberia.
53. *Atropurpurea.* Bannat. *Per.*
54. *Orientalis.* Siberia. *Per.*
55. *Sibirica.* Siberia. *Per.*
56. *Sessilis.* Armenia. *Per.*
57. *Elongata.* Barbary. *Per.*
58. *Alata.* Tartary. *Per.* 59. *Trinervia.* Sib
60. *Behen.* Asia Minor, Mount Lebanon.
61. *Repens.* The East. *Per.*
62. *Picris.* At the Caspian Sea.

63. *Jacea.* North of Europe. *Peren.*

64. *Amara.* Italy and Montpellier. *Peren.*

65. *Alba.* Spain and Switzerland. *Peren.*

66. *Splendens.* Switzer. Spain, Austria. *Bien.*

67. *Nitens.* Mount Caucasus. *Ann.*

68. *Tagana.* Portugal. *Peren.*

69. *Rhapontica.* Switz. Verona, France. *Per.*

70. *Babylonica.* In the East. *Peren.*

71. *Glastifolia.* In the East, Siberia. *Peren.*

72. *Conifera.* Montpellier. *Peren.*

73. *Sonchifolia.* Coasts of the Mediterranean. *Per.*

74. *Seridis,* or *Auriculata.* Spain. *Peren.*

75. *Romana.* Italy. *Peren.*

76. *Ferox.* Barbary near Mascar. *Peren.*

77. *Solstitialis.* Engl. France, Italy, Germ. *An.*

78. *Melitensis.* Malta and Montpellier. *Ann.*

79. *Adami.* Iberia. *An.* 80. *Sicula.* Sicily. *An.*

81. *Sphærocephala.* Mauritania, Spain, Italy. *Per.*

82. *Isnardi.* Engl. and south of Europe? *Per.*

83. *Polyacantha.* Portugal. *Ann.*

84. *Straminea.* Egypt. *Ann.*

85. *Pullata.* Spain, south of France, north of Africa, and the East. *Ann.*

86. *Napifolia.* Candia and Barbary. *Ann.*

87. *Heterophylla.* Spain. *Ann.*

88. *Aspera.* Montpel. Tuscany, Portugal. *Ann.*

89. *Benedicta.* Chio, Lemnos, Spain. *Ann.*

90. *Apula.* Italy and Barbary. *Ann.*

91. *Eriophora.* Portugal. *Ann.*

92. *Egyptiaca.* Egypt. *Ann.*

93. *Calcitrapa.* England, Switzerland, &c. *Ann.*

94. *Calcitrapoides.* Montpellier and Palestine.

95. *Nicæensis.* At Nice. *Bien.*

96. *Fuscata.* Barbary near Mascar.

97. *Hybrida.* at Turin. *Bien.*

98. *Squarrosa.* In the East.

99. *Parviflora.* In the East and Barbary.

100. *Cærulescens.* Spain. 101. *Jacobæfolia.*

102. *Reflexa.* Iberia and Armenia.

103. *Ornata.* Spain.

104. *Eryngioides.* In the East. *Peren.*

105. *Centauroides.* Italy, Spain, Montpellier, and the East. *Peren.*

106. *Collina.* Italy, Spain, Montpellier, and Carniola. *Peren.*

107. *Rupestris.* Italy. *Peren.*

108. *Pubescens.* *Per.* 109. *Sordida.* *Per.*

110. *Acaulis.* Barbary. *Peren.*

111. *Verutum.* In the East. *Ann.*

112. *Salmantica.* Europe and Barbary. *Ann.*

113. *Aurea.* South of Europe. *Peren.*

114. *Cichoracea.* Mountains of Italy.

115. *Muricata.* Spain. *Ann.*

116. *Peregrina.* South of Europe. *Bien.*

117. *Radiata.* At Tanna.

118. *Crocodylium.* Syria. *Ann.*

119. *Pumila.* Egypt. *Peren.*

120. *Tingitana.* Barbary. *Peren.*

121. *Galactites.* Europe and Barbary. *Ann.*

*122. *Pusilla.* Egypt. *Ann.* (*Thuill.*)

*123. *Rivularis.* Portugal. (*Brotero.*)

*124. *Procumbens.* Piedmont. (*Balbis.*)

*125. *Pratensis.* Europe.

*126. *Decipiens.* Europe. *Per.*

*127. *Maculosa.* France.

*128. *Intybacea.* France.

*129. *Atrotanifolia.* Spain. } Lam. *Enc.* i. 669.

*130. *Arachnoidea.* Italy. (Viviani, *Fl. Ital. Fr.*)

*131. *Decumbens.* France. (Dubois, *Fl. d'Orleans.*)

*132. *Bracteata.* Italy. (*Bertol.*)

*133. *Prolifera.* Egypt. *Ann.* (Willd. *Fl. Ber.*)

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*134. *Lyrata.* Monte Video. (*Commers.*)

*135. *Myacantha.* Near Paris. (*Decand.*)

*136. *Diffusa.* In the East. (*Lamarck.*)

*137. *Multifida.*

*138. *Pubigera.* } Persoon, *Synopsis*, ii. p. 487.

1547. ZOEGEA. *Recept.* setosum. *Papp.* setaceus. *Cor.* radii ligulatæ. *Cal.* imbric.

1. *Leptaurea.* In the East. *Ann.*

1544. MUSSINIA. *Recept.* villosum. *Papp.* pilosus. *Cor.* radii ligulatæ. *Cal.* 1-phyll. cylindraceus dent.

1. *Linearis.* Cape. *Ann.*

2. *Uniflora.* Cape. *Ann.*

3. *Speciosa.* Cape. *Per.*

4. *Incisa.* Cape. *Ann.*

5. *Othonna.* Cape. *Per.*

6. *Pinnata.* Cape. *Ann.*

1543. DIDELTA. *Recept.* setosum. *Papp.* paleaceus polyphyll. *Cal.* dup. ext. subtriphyll. int. polyphyll.

1. *Carnosa.* Cape. *Shr.* 2. *Spinosa.* Cape. *Shr.*

1536. RUDBECKIA. *Recept.* paleaceum, conicum. *Papp.* margine 4-dent. *Cal.* 2-plici ordine squamarum.

1. *Laciniata.* *Per.*

2. *Digitata.* *Per.*

3. *Triloba.* *Bien.*

4. *Hirta.* *Bien.*

5. *Fulgida.* *Peren.*

6. *Spathulata.*

7. *Amplexifolia.* *An.*

8. *Purpurea.* *Peren.*

9. *Angustifolia.* *Per.*

*10. *Pinnata.* (*Mich.*)

*11. *Aspera.* North America. *Per.* (*Cavan.*)

*12. *Nudicaulis.* Monte Video. (*Herb.* of Juss.)

Sp. 1—10 from North America.

1540. LAPEIROUSIA. *Recept.* nudum papilloso-scabrum. *Papp.* 0, nisi margo tenuis. *Corollæ* discoideæ.

1. *Calycina.* Cape of Good Hope. *Peren.*

1546. BERCKHEYA. *Recept.* paleaceum. *Sem.* pilosa. *Papp.* paleaceus. *Cal.* imbric. *Corollæ* radii hermaphroditæ, staminibus castratis.

1. *Incana.* *Peren.*

2. *Obovata.* *Shrub.*

3. *Lanceolata.* *Shr.*

4. *Cuneata.* *Shrub.*

5. *Spinosissima.* *Per.*

6. *Palmata.* *Shrub.*

7. *Grandiflora.* *Shr.*

8. *Sulcata.* *Shrub.*

9. *Bisculea.* *Shrub.*

10. *Pectinata.* *Shrub.*

11. *Patula.* *Shrub.*

12. *Squarrosa.* *Shrub.*

13. *Setosa* *Shrub.*

14. *Ciliaris.* *Shrub.*

15. *Hispida.* *Shrub.*

16. *Uniflora.* *Shrub.*

17. *Carthamoides.*

18. *Carlinoides.* *Per.*

19. *Cynaroides.* *Shr.*

20. *Pungens.* *Shrub.*

21. *Cruciata.* *Shrub.*

22. *Decurrens.* *Shrub.*

All from the Cape of Good Hope.

1535. TITHONIA. *Recept.* paleaceum convexum. *Papp.* paleaceus 5-phyll. *Cal.* polyphyll. cylindricus. *Cor.* radii 3-dentatæ.

1. *Tagetiflora.* Vera Cruz. *Ann.*

1534. GALARDIA. *Recept.* paleaceum hemisphærium. *Papp.* paleaceus polyphyll. *Cal.* imbric. polyphyll. planus. *Cor.* radii 3-partitæ.

1. *Bicolor.* From Carolina to Florida. *Ann.*

2. *Fimbriata.* From Carolina to Florida.

1538. COREOPSIS. *Recept.* paleaceum. *Sem.* compressa emarginata. *Papp.* bicornis. *Cal.* dup. uterque polyphyll.

1. *Ferulæfolia.* Mexico. *Peren.*

2. *Verticillata.* Virginia. *Peren.*

3. *Tenuifolia.* Carolina. *Peren.*

4. *Coronata.* West-Indies. *Ann.*

5. *Trichosperma.* Upper Carolina.

6. *Aristata.* The Illinois.

7. *Mitis.* Marshes of Carolina.

8. *Chrysantha.* West Indies.

9. *Aurea*. North America. *Peren.*
10. *Tripteris*. Mts. of Virgin. and Carol. *Per.*
11. *Senifolia*. Hills of Carolina. *Peren.*
12. *Alba*. Island of Santa Cruz. *Peren.*
13. *Fœtida*. Mexico. *Ann.*
14. *Reptans*. W. Ind. 15. *Heterophylla*. Mexico.
16. *Baccata*. Surinam.
17. *Auriculata*. Mts. of Virgin. and Carol. *Per.*
18. *Lanceolata*. Carolina. *Bien.*
19. *Crassifolia*. Carolina. *Peren.*
20. *Latifolia*. Carolina. *Peren.*
21. *Angustifolia*. Carolina and Florida. *Peren.*
22. *Alata*. Mexico. *Per.* 23. *Ovata*. Do. *Per.*
24. *Alternifolia*. Virginia and Canada. *Peren.*
25. *Procera*. North America. *Peren.*
* 26. *Leucorhiza*. Cochinchina. *Per.* } *Loureiro.*
* 27. *Biternata*. Cochinchina. }
* 28. *Gladiata*. Carolina. (*Mich.*)

1537. Cosmea. *Recept.* paleaceum. *Sem.* tetragona. *Papp.* 2 seu 4-aristatus. *Cal.* dup. uterque 1-phyll. 8-part.
1. *Sulphurea*. Mexico. *Ann.*
2. *Bipinnata*. Do. *Per.* 3. *Parviflora*. Do. *An.*

1538. Helianthus. *Recept.* paleaceum planum. *Papp.* 2-phyll. *Cal.* imbric. subsquarrosus.
1. *Annuus*. Peru and Mexico. *Ann.*
2. *Indicus*. Egypt. *Ann.*
3. *Tubæformis*. Mexico. *Ann.*
4. *Quinqueradiatus*. Mexico. *Shrub.*
5. *Dentatus*. Do. 6. *Multiflorus*. Virgin. *Per.*
7. *Tuberosus*. Brazil. *Peren.*
8. *Pubescens*. North America. *Bien.*
9. *Mollis*. North America. *Peren.*
10. *Trachelifolius*. North America. *Peren.*
11. *Decapetalus*. Canada. *Peren.*
12. *Frondosus*. Canada. *Peren.*
13. *Strumosus*. Canada. *Peren.*
14. *Prostratus*. North America. *Peren.*
15. *Giganteus*. Virginia and Canada. *Peren.*
16. *Altissimus*. Pennsylvania. *Peren.*
17. *Excelsus*. Mexico. *Peren.*
18. *Linearis*. Mexico. *Shrub.*
19. *Angustifolius*. From Virginia to Florida. *Per.*
20. *Divaricatus*. North America. *Peren.*
21. *Atrorubens*. Virginia and Carolina. *Bien.*
* 22. *Sarmentosus*. Cayenne. (Rich. *Act. Soc. Par.*)
* 23. *Incanus*. Peru. (*Herb.* of Juss.)
* 24. *Cochinchinensis*. Cochinchina and China. (*Loureiro.*)
* 25. *Lætiflorus*. North America. *Per.* (*Lam.*)

1539. Osmites. *Recept.* paleaceum. *Papp.* obsoletus. *Cor.* radii ligulatæ. *Cal.* imbric. scariosus.
1. *Bellidiastrum*.
2. *Dentata*.
3. *Camphorina*.
4. *Asteriscoides*.

All shrubby, and from the Cape of Good Hope.

1542. Sclerocarpus. *Recept.* paleaceum. *Papp.* 0. *Cal.* dup. uterque 3 phyll.
1. *Africanus*. Guinea. *Ann.*

1541. Fallasia, or Encelia. *Recept.* paleaceum. *Papp.* 0. *Sem.* verticalia plana marginato-ciliata. *Cal.* imbric.
1. *Halimifolia*. Mexico. *Shrub.*
2. *Grandiflora*. Mexico. *Shrub.*

Necessaria.

1550. Milleria. *Recept.* nudum. *Papp.* 0. *Cal.* 3 valv. *Radius* corollæ dimidiatus.
1. *Quinqueflora*. Panama, Vera Cruz, Mexico. *Ann.*
2. *Biflora*. Campechy. *Ann.*
3. *Cantrayerba*. Peru. *Ann.*
4. *Angustifolia*. New Spain. *Ann.*

1551. Baltimora. *Recept.* paleaceum. *Papp.* 0. *Cal.* cylindricus polyphyll. *Radius* cor. 5-florus.
1. *Recta*. Maryland and at Baltimore. *Ann.*

1563. Othonna. *Recept.* nudum. *Papp.* subnullus. *Cal.* 1-phyll. multifidus, subcylindricus.
1. *Capillaris*. *Ann.*
2. *Trifurcata*. *Shr.*
3. *Trifida*. *Shrub.*
4. *Multifida*.
5. *Ciliata*.
6. *Pinnatifida*.
7. *Munita*. *Shrub.*
8. *Pinnata*. *Peren.*
9. *Tagetes*. *Ann.*
10. *Pectinata*. *Shrub.*
11. *Athanasiæ*.
12. *Abrotanifolia*. *Shr.*
13. *Digitata*. *Per.*
14. *Retrofracta*. *Shr.*
15. *Coronopifolia*. *Sh.*
16. *Cheirifolia*. Africa. *Shrub.*
17. *Crassifolia*. Africa. *Shrub.*
18. *Sulcata*.
19. *Denticulata*. *Shr.*
20. *Quinquedentata*. *Sh.*
21. *Heterophylla*. *Per.*
22. *Lingua*. *Peren.*
23. *Filicaulis*. *Per.*
24. *Bulbosa*. *Per.*
25. *Parviflora*. *Shr.*
26. *Amplexicaulis*. *Shr.*
27. *Laterifolia*. *Shr.*
28. *Imbricata*.
29. *Virginea*. *Shr.*
30. *Ericoides*. *Shr.*
31. *Linifolia*. *Peren.*
32. *Tenuissima*. *Shr.*
33. *Frutescens*. *Shr.*
34. *Arborescens*. *Shr.*
35. *Cacalioides*. *Shr.*

All from the Cape of Good Hope.

1565. Psiadia. *Recept.* nudum. *Papp.* pilosus sessilis. *Cal.* imbric. ovatus. *Cor.* radii abbreviatæ.
1. *Glutinosa*. Mauritius. *Shrub.*

Given under the order Superflua by Persoon.

1558. Unxia. *Recept.* nudum planum. *Papp.* 0. *Cal.* 5-phyll.
1. *Camphorata*. Sandy places in Surinam.
2. *Hirsuta*. Cayenne. *Ann.*

1564. Hippia. *Recept.* nudum. *Papp.* 0. *Sem.* latissimis marginibus, nuda. *Cal.* hemisphæricus subimbric. *Cor.* radii 10, obsoletæ subtrifidæ.
1. *Frutescens*. Cape of Good Hope. *Shrub.*
2. *Minuta*. South America.
3. *Stolonifera*. Portugal. *Ann.*
4. *Integrifolia*. East Indies. *Ann.*

1562. Osteospermum. *Recept.* nudum. *Papp.* 0. *Cal.* polyphyll. *Sem.* globosa, colorata, ossea.
1. *Spinosum*. *Shr.*
2. *Spinescens*. *Shr.*
3. *Pisiferum*. *Shr.*
4. *Moniliferum*. *Shr.*
5. *Ilicifolium*. *Shr.*
6. *Rigidum*. *Shrub.*
7. *Cæruleum*. *Shrub.*
8. *Bipinnatum*.
9. *Arctotoides*.
10. *Perfoliatum*.
11. *Niveum*.
12. *Herbaceum*.
13. *Hirsutum*.
14. *Bidens*.
15. *Ciliatum*. *Shrub.*
16. *Junceum*.
17. *Corymbosum*. *Shr.*
18. *Scabrum*.
19. *Incanum*.
20. *Triquetrum*. *Shr.*
21. *Teretifolium*. *Shr.*
22. *Imbricatum*. *Shr.*
23. *Polygaloides*. *Shr.*

All from the Cape of Good Hope.

1559. Calendula. *Recept.* nudum. *Papp.* 0. *Cal.* polyphyll. æqualis. *Sem.* disci membranacea.
1. *Arvensis*. Europe. *Ann.*
2. *Stellata*. Barbary. *Ann.*
3. *Sancta*. Palestine. *Ann.*
4. *Officinalis*. Europe. *Ann.*
5. *Suffruticosa*. Tunis. *Shrub.*
6. *Incana*. Morocco and Portugal. *Ann.*

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7. *Pluvialis.* *Ann.*
8. *Hybrida.* *Ann.*
9. *Amplexicaulis.*
10. *Pinnata.*
11. *Scabra.*
12. *Parviflora.*
13. *Decurrens.*
14. *Nudicaulis.*
15. *Tomentosa.*
16. *Pumila.* New Zealand. *Peren.*
17. *Magellanica.* *Per.*
18. *Graminifolia.*
19. *Tragus.* *Shrub.*
20. *Oppositifolia.* *Shr.*
21. *Glabrata.* *Shrub.*
22. *Fruticosa.* *Shr.*
23. *Arborescens.* *Shr.*
24. *Muricata.* *Shrub.*
25. *Cuneata.* *Shrub.*
* 26. *Egyptiaca.* Egypt. (*Persoon.*)
* 27. *Crysanthemifolia.* (Ventenat. *Malmais*, p. 56.)

Sp. 7—25 from the Cape of Good Hope.

560. ARCTOTIS. *Recept.* villosum seu paleaceum. *Papp.* corona 5-phylla. *Cal.* imbric. squamis apice scariosis.

1. *Calendulacea.* *An.*
2. *Hypochondriaca.* *An.*
3. *Acaulis.* *Peren.*
4. *Tricolor.* *Peren.*
5. *Undulata.* *Peren.*
6. *Speciosa.* *Peren.*
7. *Glaucophylla.* *Per.*
8. *Plantaginea.* *Per.*
9. *Argentea.* *Peren.*
10. *Rosea.* *Shrub.*
11. *Decumbens.* *Per.*
12. *Angustifolia.* *Shr.*
13. *Flaccida.* *Ann.*
14. *Virgata.* *Ann.*
15. *Paniculata.* *Shr.*
16. *Decurrens.* *Shrub.*
17. *Reptans.* *Peren.*
18. *Auriculata.* *Shr.*
19. *Fastuosa.* *Ann.*
20. *Spinulosa.* *Ann.*
21. *Maculata.* *Shrub.*
22. *Grandiflora.* *Shr.*
23. *Aspera.* *Shrub.*
24. *Lyrata.* *Shrub.*
25. *Elatior.* *Shrub.*
26. *Arborescens.* *Shr.*
27. *Revoluta.* *Ann.*
28 *Cuprea.* *Shrub.*
29. *Squarrosa.* *Shr.*
30. *Cineraria.* *Peren.*
31. *Glabrata.* *Shrub.*
32. *Paradoxa.* *Shrub.*
33. *Paleacea.* *Shrub.*
34. *Dentata.* *Shrub.*
35. *Pilifera.*
36. *Scariosa.* *Shrub.*
37. *Crithmoides.* *Shr.*
38. *Anthemoides.* *Ann.*
39. *Fœniculacea.* *Ann.*
40. *Serrata.* *Peren.*
41. *Tenuifolia.*
42. *Leucanthemoides.* *A.*
43. *Linearis.*
44. *Pinnatifida.*
45. *Glandulosa.*
46. *Grandis.*
47. *Elongata.*
48. *Diffusa.*
49. *Scabra.* *Shrub.*
50. *Incisa.*
51. *Muricata.*
52. *Petiolata.*
53. *Formosa.*
54. *Pectinata.* *Shrub.*
55. *Elegans.* *Shrub.*
56. *Trifida.*
57. *Nodosa.* *Shrub.*
58. *Nudicaulis.*
59. *Cernua.* *Shrub.*
60. *Sericea.*

Persoon includes under this genus only Sp. 1—42. He thinks that the other six species are not sufficiently distinct. All from the Cape.

1566. ERIOCEPHALUS. *Recept.* subvillosum. *Papp.* 0. *Cal.* 10-phyll. æqualis. *Radii* flosculi 5.

1. *Africanus.* Cape. *Per.*
2. *Glaber.* Cape of Good Hope. *Peren.*
3. *Racemosus.* Do. *Shr.*

1568. IVA. *Recept.* pilosum. *Sem.* nuda obtusa. *Cal.* 3-phyll. *Cor* radii 5. *Styli* 2 longi.

1. *Annua.* South America. *Ann.*
2. *Ciliata.* North America. *Ann.*
3. *Imbricata.* Carolina and Georgia. *Shrub.*
4. *Frutescens.* North America and Peru. *Shr.*

1569. FILAGO, or EVAX of Persoon. *Recept.* paleaceum. *Papp.* 0. *Cal.* imbric. *Flosculi* fem. inter squamas calycis locati.

1. *Pygmæa.* S. of Europe and the East. *Ann.*

Persoon ranks under this genus Sp. 109 and 114 of GNAPHALIUM.

1570. MICROPUS. *Recept.* paleaceum. *Papp.* 0. *Cal.* calyculatus. *Radius* cor. 0. *Flosc.* feminei a squamis calycinis involuti.

1. *Supinus.* Portugal, Italy, and the East. *Ann.*
2. *Erectus.* The East, France and Spain. *Ann.*

Given under the order SUPERFLUA, by Persoon.

1553. WEDELIA. *Recept.* paleaceum. *Papp.* 4-seu 10-dent. *Cal.* simpl. 4-vel 5-phyll.

1. *Frutescens.* Antilles, Guadaloupe, Antig. *Shr.*
2. *Perfoliata.* Mexico. *Ann.*
* 3. *Parviflora.* Guadaloupe. *Shr.*
* 4. *Calycina.* Guadaloupe. *Shr.*
* 5. *Cruciana.* Isl. of Sta. Cruz. *Shr.*
* 6. *Calendulacea.* N. Spain. *Shr.*
* 7. *Serrata.* St Domingo. *Shrub.*
* 8. *Crenata.* Guadaloupe.
* 9. *Mollis.* South America.

(3–9: Richard in Persoon's *Synopsis*, v. ii. p. 490.)

* 10. *Africana.* Equinoctial Africa. (*Beauvois.*)
* 11. *Benghalensis.* Bengal. *Peren.*
* 12. *Gracilis.* St Domingo.

See the new genus ALCINA.

1549. ACICARPHA. *Recept.* paleaceum, paleis cum seminibus post florescentiam connatis. *Papp.* 0. *Sem.* nuda. *Cor.* omnes tubulosæ. *Cal.* 5-part.

1. *Tribuloides.* Buenos Ayres.
* 2. *Lanata.* New Spain. (*Lagasca.*)

1554. POLYMNIA. *Recept.* paleaceum. *Papp.* 0. *Cal.* dup. ext. 4 seu 5-phyll. int. 10-phyll. foliolis concavis.

1. *Canadensis.* Canada and Pennsylvania. *Per.*
2. *Uvedalia.* Virginia, Carol. and Mexico. *Per.*
3. *Abyssinica.* Abyssinia. *Bien.*

1557. MELAMPODIUM. *Recept.* paleaceum, conicum. *Papp.* 1-phyll. vulviformis. *Cal.* 5-phyll.

1. *Americanum.* Vera Cruz.
2. *Humile.* Jamaica, St Domingo. *Ann.*
3. *Australe.* Cumana. *Peren.*

1567. PARTHENIUM. *Recept.* paleaceum, planum, *Sem.* obovata subnuda. *Cal.* 5-phyll.

1. *Hysterophorus.* Jamaica, Martinique, and Mexico. *Ann.*
2. *Integrifolium.* Virginia and Carolina. *Per.*

1561. ARCTOTHECA. *Recept.* favoso-paleaceum. *Papp.* 0. *Cal.* imbric.

1. *Repens.* Cape of Good Hope. *Peren.*

1555. TRIXIS. *Recept.* paleaceum. *Papp.* 0. *Sem.* apice villosa. *Cor.* radii 3-fid. *Cal.* imbric.

1. *Therebinthinacea.* Jamaica. *Shrub.*
2. *Aspera.* West Indies and Guiana. *Shrub.*
3. *Erosa.* Dominica, St Christophers. *Shr.*
* 4? *Pedunculosa.* Cayenne. (*Richard.*)

1552. SILPHIUM. *Recept.* paleaceum. *Papp.* marginato-bicornia. *Cal.* squarrosus.

1. *Laciniatum.*
2. *Compositum.*
3. *Therebinthinaceum.*
4. *Perfoliatum.*
5. *Connatum.*
6. *Asteriscus.*
7. *Pumilum.*
8. *Integrifolium.*
9. *Trifoliatum.*
10. *Ternatum.*
11. *Atropurpureum.*

All perennial, and from North America.

1556. CHRYSOGONUM. *Recept.* paleaceum. *Papp.* 1-phyll. 3-dent. *Cal.* 5-phyll. *Sem.* calyculo 4-phyllo involuta.

1. *Virginianum.* Virginia and Carolina.

SEGREGATA.

1584. TETRANTHUS. *Cal.* 1-phyll. obliquus. *Cal.* com. 5-phyll. 4-florus. *Sem.* margine ciliato calycis coronata. *Recept.* nudum.

1. *Littoralis.* Hispaniola. *Ann.*

1581. ROLANDRA. *Flosculi* fasciculati in capitulum [illegible] *[illegible].* [illegible] 1-florus. [illegible]

[illegible] *Cal.* [illegible]

[illegible] *Cal.* com. poly-[illegible] *Re-[illegible]*

[illegible] Chili. *Per.*

[illegible] *Cal.* com. 6 8 [illegible] *Recept.* al-[illegible]

1. [illegible] New Spain. *Shrub.*

[illegible] *Cal.* 1-phyll. multipart. multiflor. [illegible] *Recept.* paleaceum. *Sem.* calyce [illegible] dentibus ejusdem persistentibus [illegible].

1. *[illegible].* Sandy parts of Chili. *Per.*
2. *[illegible].* Buenos Ayres. *Peren.*

15[illegible]. [illegible] or SERIPHIUM. *Cal.* 1-florus. *Corol.* tubulosæ hermaph. *Recept.* nudum. *Papp.* plumosus.

1. *[illegible].* *Shrub.*	11. *Disticha.* *Shrub.*
2. *[illegible].* *Shrub.*	12. *Fasciculata.* *Shr.*
3. *[illegible].* *Shrub.*	13. *Plumosa.* *Shrub.*
4. *[illegible].* *Shrub.*	14. *Fusca.* *Shrub.*
5. *[illegible].* *Shr.*	15. *Virgata.* *Shrub.*
6. *[illegible].* *Per.*	16. *Aspera.* *Shrub.*
7. *[illegible].* *Shr.*	17. *Passerinoides.* *Shr.*
8. *[illegible].* *Shrub.*	18. *Rhinocerotis.* *Shr.*
9. *[illegible].* *Shrub.*	19. *Cernua.* *Shrub.*
10. *[illegible].* *Shrub.*	20. *Nivea.* *Shrub.*

* 21. *[illegible].* Africa. *Shrub.*
* 22. *[illegible].* Africa. *Shrub.*
* 23. *[illegible].* India.

All from the Cape, except Sp. 17 from Mauritius and Bourbon.

15[illegible]. OEDERA. *Calyc.* multiflori. *Cor.* tubulosæ, hermaph. et una alterave feminea ligulata. *Recept.* paleaceum. *Papp.* paleis pluribus.

1. *[illegible].* Cape of Good Hope. *Shrub.*
2. *[illegible].* Cape of Good Hope. *Shrub.*
3. *Hirta.* Cape of Good Hope. *Shrub.*

15[illegible]. BROTERA, or CARDOPATUM of Persoon. *Cal.* 1-flor. polyphyll. *Cal.* com. 6 seu 8-flor. imbric. polyphyll. *Cor.* tubulosæ uniformes. *Recept* nudum. *Sem.* calyculo adnato tecta.

1. *Corymbosa.* Italy, Lemnos, Thrace. *Per.*

1579. ECHINOPS. *Calyc.* 1-flor. *Cor.* tubulosæ, hermaph. *Recept.* setosum. *Papp.* obsoletus.

1. *Sphærocephalus.* Italy, Austria, Germ. *Per.*
2. *Spinosus.* Barbary, Egypt, Candia. *Peren.*
3. *Ritro.* Siber. France, Italy, Carniola. *Per.*
4. *Strigosus.* Spain. *Ann.*
5. *Lanuginosus.* Greece and in the East. *Shr.*
6. *Virgatus.* South of Europe.
* 7. *Horridus.* Persia. *Per.* (*Persoon.*)

1571. ELEPHANTOPUS. *Calyculus* 4-flor. *Corollulæ* ligulatæ, hermaph. *Recept.* nudum. *Papp.* setaceus.

1. *Scaber.* East Indies. *Peren.*
2. *Carolinianus.* Carol. Florida, Jamaica. *Per.*
3. *Tomentosus.* West Indies.
4. *Nudiflorus.* St Domingo. *Shrub.*
5. *Spicatus.* Jamaica, Hispaniola. *Shrub.*
6. *Angustifolius.* Jamaica. *Shrub.*

1578. NASSAUVIA. *Flores* fasciculati in capitulum squamis interjectis. *Cal.* 4-5-flor. dup. int. 5-phyll. ext. 3-phyll. *Cor.* tubulosæ subbilabiatæ. *Papp.* 4-5-setus caducus. *Recept.* nudum.

1. *Suaveolens.* Straits of Magellan. *Peren.*

1572. JUNGIA. *Recept.* paleaceum. *Cal.* 3 seu 4-flor. *Calyculus* polyphyll. multiflor. *Flosculi* tubulosi, 2-lab. lab. *ext.* ligulato, *int.* 2-part. *Papp.* plumosus.

1. *Ferruginea.* South America. *Shrub.*

1585. GUNDELIA. *Calyc.* 0. foveæ receptaculi 5-floræ. *Coroll.* tubulosæ masculæ et hermaph. *Recept.* paleaceum. *Papp.* 0.

1. *Tournefortii.* Armenia, Syria, Aleppo. *Per.*

1577. SPHÆRANTHUS. *Cal.* 8-flori. *Coroll.* tubulosæ hermaph. et obsolete fem. *Recept.* squamosum. *Papp.* 0.

1. *Indicus.* East Indies. *Peren.*
2. *Microcephalus.* Java.
3. *Hirtus.* 4. *Africanus.* Cape. *Ann.*
5. *Chinensis.* East Indies.
* 6. *Cochinchinensis.* China, Cochinch. (*Lour.*)

1574. CRASPEDIA. *Calyculus.* 0. *Cal.* com. imbric. *Flosculorum* fasciculi aliquot depressi, omnes hermaphroditi tubulosi. *Papp.* plumosus. *Recept.* paleaceum.

1. *Uniflora.* New Zealand.

NEW GENERA.

ÆQUALIS.

New Ge-nera.

I. TROXIMON. *Cal.* oblongus, conicus, simplex, vel squamis inæqualibus imbricatus. *Recept.* nudum, puncticulatum. *Pappus* sessilis pilosus.

This genus contains Sp. 8 of HYOSERIS, and Sp. 11, 12 of TRAGOPOGON.

II. PICRIDIUM. *Cal.* interne ventricosus, imbricatus squamis latiusculis, margine membranaceis. *Pappus* sessilis, villosus, simplex. *Sem.* 4-gona, transversim tuberculosa. (Pedunc. incrassati.)

1. *Lignitanum.* N. Africa. (*Vent. Malm.* 66.)

This genus contains also Sp. 20, 22 of SONCHUS, Sp. 28 of SCORZONERA, and Sp. 10 of CREPIS.

III. SOLDEVILLA. *Cal.* imbricatus: fructus basi ventricosus, squamis apice conniventibus. *Recept.* paleaceum: paleis brevissimis in lacinias setosas [illegible]. *Sem.* calva seu pappo 0.

1. *Setosa.* Spain. (*Lagasca.*)

IV. MOSCARIA. *Cal.* 6-phyll. æqualis. *Recept.* planum, paleaceum. *Sem.* exteriora. pappo brevi plumoso coronata, centralia nuda.

New Ge-nera.

1. *Pinnatifida.* Chili. (*Fl. Per.* Syst. 186.)

V. PLAZIA. *Cal.* imbricatus. *Cor.* subradiata. *Anth.* curvata. *Recept.* nudum, planum. *Pappus* pilosus. *Sem.* linearia, angulata.

1. *Conferta.* Peru. (*Fl. Per.* Syst. 187.)

VI. BACAZIA. *Cal.* imbricatus, scariosus. *Corollul.* unica in disco tubulosa amplissima, reliquæ 4-dentatæ, seta revoluta ori tubo inserta. *Recept.* pilosum. *Pappus* plumosus.

1. *Spinosa.* Peru. (*Fl. Per.* Syst. 288.)

VII. BERARDIA. *Cal.* imbricatus squamis linearibus inermibus. *Recept.* subfavosum, nudum. *Pappus* pilosus ut plurimum spiraliter contortus, persistens.

1. *Subacaulis.* (*Onopordium rotundif.* of Willd.)

VIII. PODOSPERMA. *Cal.* oblongus, imbric. *Recept.* mamillatum, glabrum. *Pappus* plumosus. *Sem.* e latere pedicellata. (*Labill. N. Holl.* &c. ii. p. 35.)

1. *Angustifolia.* Van Leuuwen's Land.

IX. MELANANTHERA. *Cal.* imbric. squamis ovatis, imbricatis, appressis, subæqualibus. *Recept.* paleaceum: paleis membranaceis, carinatis, flosculos inferne amplexantibus. *Sem.* turbinata, sub-4-gona. *Pappus* aristis inermibus 4-5, inæqualib. (Vaginula antherar. inclusa nigricans.) (*Mich.*)

1. *Hastata.* Carolina, Jamaica. } *Mich.* ii.
2. *Delloidea.* Warm pts. of America. } p. 107.

X. LAGASCA. *Cal.* simplici serie squamis foliaceis. *Recept.* exasperatum. *Sem.* (villosa), aristis 4 persistentibus. (Cav. *Ann. Sc. Nat.*)

1. *Mollis.* Havannah, S. America. *Ann.*

XI. JAUMEA, or KLEINIA of Juss. *Cal.* subrotundus, imbric. squamis subrotundis 3-plici serie dispositis. *Recept.* nudum. *Papp.* brevis, plumosus.

1. *Linearis.* R. La Plata. *Shr.* (Juss. *Ann. Mus.*)

XII. SPARGANOPHORUS. *Cal.* sublobosus imbricatus squamis inæqualibus apice recurvato-patulis. *Recept.* nudum. *Sem.* coronata cupula subcartilaginea. This genus contains Sp. 2, 3, and 7 of ÆTHULIA.

XIII. TRATTENIKIA. (Not the TRATTINNICKIA of Willd.) *Cal.* imbric. squamis sublanceolatis, incumbentibus. *Recept.* paleaceum. *Papp.* paleis quinque membranaceis, acuminatis.

1. *Lanceolata.* Carolina. } *Mich.* ii. 105.
2. *Latifolia.* Carolina. } under PER-
3. *Angustifolia.* Near Tenassee. } SOONIA.

XIV. CALOMERIA, or HUMEA of Smith. *Cal.* imbric., oblongus, coloratus: squamæ squariosæ conniventes. *Floscul.* 3-4. *Stig.* fimbriata. *Recept.* nudum. *Papp.* 0. (Vent. *Malm.* 73.)

1. *Amaranthoides*, or *Elegans* of Smith. New South Wales. *Bien.*

SUPERFLUA.

XV. CHUQUIRAGA. *Cor.* composita, uniformis, cal. paulo brevior. *Corollulæ* hermaph. 60 tubulosæ. *Stam.* 5, basi cor. inserta, inclusa. *Anth.* fil. longiores, in tubum apice 5-dent. basi setis 10 instructum connatæ. *Ovar.* ovatum, hirsutissimum. *Styl.* 1. *Stig.* crassum, 2-fid. *Sem.* ovata, pilis numerosis strigosa pappo coronata. *Papp.* plumosus, longitudine cor., multiradiatus. *Recept.* planum, villosum. (*Juss.* and Humboldt, *Pl. Æquin.* p. 150.)

1. *Microphylla.* High and cold mts. of Peru.

XVI. TESSARIA. *Cal.* ovatus, imbric. squamis scariosis superne radiantibus. *Corollula* hermaphrodita unica in centro, magna, profunde 5-fida. *Recept.* conicum, villosum. *Papp.* pilosus.

1. *Integrifolia.* Peru. } *Fl. Peruv. Syst.* p. 213.
2. *Dentata.* Peru. }

XVII. PLACUS. *Cal.* imbric. inverse turbinatus, squamis linearibus. *Cor.* radii nullæ. *Recept.* nudum. *Papp.* pilosus.

1. *Tomentosus.* Cochinchina. } *Loureiro,*
2. *Lævis.* Cochinchina. } p. 607.

XVIII. CHÆTANTHERA. *Cal.* polyphyll. ciliatus: *Coroll.* radii lineares, 3-dent.: lacinia ad incisuram tenuissima, 2-fida, spirali. *Anth.* disci inferne setis decem. *Recept.* nudum, planum. *Papp.* pilosus.

1. *Ciliata.* Hills of Chili. } *Fl. Per. Syst.*
2. *Serrata.* At Conception. } p. 190.

XIX. PODOLEPIS. *Cal.* scariosus imbric. squamis pedicellatis. *Recept.* nudum. *Papp.* pilosus. (Flor. radiati ligulis difformibus.) (Labill. *N. Holl.* ii. p. 57.)

1. *Rugata.* Van Leuuwen's Land.

XX. CENIA. *Cal.* fructus turbinatus, apice multifidus. *Cor.* radii plurimæ, breves. *Recept.* nudum. *Sem.* compressa. (*Jussieu.*)

1. *Turbinata.* (*Lidbeckia turbinata* of Willd.)

XXI. MUNNOZIA. *Cal.* campan. imbric. squamis angustissimis 3-fidis. *Recept.* favosum ciliatum. *Papp.* pilosus. *Sem.* truncata, striata. (*Fl. Per. Syst.* p. 195.)

1. *Corymbosa.* Peru. 3. *Venosissima.* Peru.
2. *Trinervis.* Peru. 4. *Lanceolata.* Peru.

XXII. MEYERA. *Cal.* communis 4-phyll.: foliol. 2-interioribus minoribus. *Recept.* parvum, paleaceum: paleæ 2 semen includentes, carinatæ. *Papp.* 0. (Flor. flosculosi.)

1. *Sessilis.* South of Jamaica.

XXIII. CHRYSANTHELLUM. *Cal.* cylindricus, longitudine fere flosculorum basi squamis auctus. *Recept.* paleaceum, paleis planis. *Cor.* plurimæ, lineares, 2-dent. breves; *centri* pauciores plerique abortivi. *Sem.* nuda teretiuscula, sulcata, intermixta aliis compressis, margine integro. (*Richard.*)

1. *Procumbens.* (*Verbesina mutica* of Willd.)

XXIV. SYNEDRELLA. *Cal.* foliolus utplurimum 2. *Flor.* flosculosi. *Recept.* obsoletum, paleaceum: paleis glumaceis, extimis ovatis. *Sem.* ovalia, plana, marginata: margine inciso-dentato dentibus summis corniculatim erectis; centralia dissimila, lineari-oblonga, immarginata, 2-3-aristata: aristis longis rigidis divaricato-patulis, antrorsum subpubescentibus. (*Richard.*)

1. *Nodiflora.* (*Verbesina nodiflora* of Willd.)

Richard observes, that this genus scarcely differs from the *Heterospermum* of Cavanilles, and that *Heterospermum ovatifolium* of that author connects the two genera.

XXV. ZALUZANIA. *Cal.* laciniis distinctis subovatis æqualibus. *Cor.* radiata. *Recept.* conicum, paleaceum: paleis membranaceis 3-fid. sem. involventibus, sub 4-gona, nuda.

1. *Triloba.* (*Anthemis triloba* of Willd.)

XXVI. SOBRYA. *Cal.* magnus, 4-gonus 4-phyll.: foliol. patentibus, oppositis majoribus. *Recept.* convexum, paleaceum: paleis obovatis, 3-dent. ciliatis. *Papp.* 0.

1. *Sessilifolia.* Peru. } *Fl. Per. Syst.* p. 197.
2. *Oblonga.* Peru. }

XXVII. HELIOPSIS. *Cal.* imbric. squamis ovatis lineatis. *Cor.* radii lineares, magnæ. *Recept.* paleaceum, conicum, paleis lanceolatis. *Sem.* 4-gona. *Papp.* 0.

1. *Lævis.* (*Buphthalmum helianthoides* of Willd.)

FRUSTANEA.

XXVIII. GALACTITES. *Cal.* imbric. squamis subsquarrosis spinosis. *Recept.* favosum. *Papp.* plumosus deciduus.

1. *Tomentosa.* (*Centaurea galactites* of Willd.)

NECESSARIA.

XXIX. FLAVERIA. *Cal.* communis imbric. squamis inæqualibus *partialis* 2-5-phyll. 2-5-florus. *Radius* 1 aut 0. ligulatus, integerrimus. *Papp.* 0. *Re-*

Class XIX.
Syngenesia.

cept. nudum. *Sem*. obovata striata. (Juss. *Gen.Pl.*) This genus contains Sp. 3 and 4 of MILLERIA.

XXX. DYSODIUM. *Cal*. 5-part. *Flosc*. radii plures, ligula brevissima; disci numerosiores. *Ovar*. difform. *Sem*. difformia, infra punctum adnexionis gibba, apice oblique truncata, nuda. (*Richard.*)
1. *Divaricatum*. At St Martha in S. America.

XXXI. ALCINA. *Cal*. simplex, 5-phyll. patens: foliol. ovatis. *Recept*. minimum, paleaceum: paleis ovatis, concavis. *Papp*. 0. *Sem*. in orbiculum expansa, corticata, apice tuberculis 4 minimis et quinto perforata. (Cav. *Ic*. i. p. 11.)
1. *Perfoliata*. (*Wedelia perfoliata* of Willd.)

XXXII. SOLIVA. *Cal*. 7-phyll.: foliolis marginibus imbricatis; tribus exterioribus majoribus. *Radius* 0. *Recept*. minimum, subvillosum. *Sem*. compressa, membrana cincta aculeis 2 styloque coronata.
1. *Sessilis*. At Conception. *Per*. } *Flor. Per.*
2. *Pedicellata*. In Munna. } *Syst*. 215.

XXXIII. GUARDIOLA. *Cor*. composita radiata; disco 8-floro, hermaph., sterili; radio 3 seu 5-floro, fœmineo, revoluto. *Fil*. in hermaph. quinque capillaria, summo tubo inserta. *Anth*. totidem in cylindrum connatæ: polline viridi. *Ovar*. in hermaph. lineare, abortiens. *Styl*. filiformis. *Stig*. simplex. *Stam*. in fem. 0. *Ovar*. oblongum, crassiusculum. *Styl*. exsertus. *Stig*. 2, revoluta. *Sem*. in hermaph. 0, in fœm. oblongo ovato. *Papp*. 0. (Humboldt, *Pl. Æquin*. p. 143.)
1. *Mexicana*. Mexico.

XXXIV. GYMNOSTYLES. *Cal*. polyphyll. ordine simplici. *Flosc*. fœminei apetali. *Sem*. compressa, apice subdentata, stylo persistente aristata. (*Herb*. subacaules, ramulis diffusis. *Flor*. solitarii sessiles.)
1. *Anthemifolia*. Australasia.
2. *Nasturtiifolia*. Buenos Ayres.
3. *Pterosperma*. Brazil.

SEGREGATA.

XXXV. SILOXERUS. *Calycul*. in capitul, ovalia aggregati, 2-3-flori. *Flosc*. bullati, hermaphroditi. *Styl*. obverse clavatus. *Recept*. commune pilosum; partiale paleaceum. *Papp*. 5-fidus dentatus. (*Labill.*)
1. *Humifusus*. Van Leeuwen's Land.

XXXVI. ENYDRA. *Cal*. communis 4-phyll. magnus: foliol. 2-oppositis minoribus: partialis 1-florus, apice multifido connivente. *Cor*. tubulosæ, radii 3-fidæ. *Recept*. nudum. *Papp*. 0.
1. *Fluctuans*. Cochinchina. *Per*. (*Loureiro.*)

CLASS XX. GYNANDRIA.

Class XX.
Gynandria.

DIANDRIA.

SECT. I. *Orchideous, and with Spurs.*

‡ 1587. ORCHIS. *Cor*. 5-pet. petalo sup. fornicato. *Labellum* basi subtus calcaratum. *Anth*. terminalis adnata.
1. *Susannæ*. Amboyna. 2. *Radiata*. Japan.
3. *Cilearis*. From Canada to Carolina.
4. *Blephariglottis*. Pennsylvania.
5. *Cristata*. Carolina and Virginia.
6. *Bifolia*. England and other parts of Europe.
7. *Clavellata*. Carol. 12. *Hispidula*. Do.
8. *Japonica*. Japan. 13. *Secunda*. Do.
9. *Foliosa*. Cape. 14. *Viridiflora*. E. Ind.
10. *Platyphyllus*. East Indies. 15. *Cucullata*. Siberia.
16. *Ornithis*. Austria.
11. *Pectinata*. Cape. 17. *Conica*. Portugal.
18. *Globosa*. Switzerland, Austria, Carniola.
19. *Pyramidalis*. England, Switzerland, France.
20. *Condensata*. Algiers.
21. *Coriophora*. Europe, the East, and Barbary.
22. *Acuminata*. Algiers. 23. *Cubitalis*. Ceylon.
24. *Morio*. England and other parts of Europe.
25. *Mascula*. England and other parts of Europe.
26. *Longicornu*. Shady mountains of Algiers.
27. *Patens*. Mount Atlas.
28. *Ustulata*. England and other parts of Eur.
29. *Intacta*. Portugal.
30. *Tephrosanthos*. France, Italy, Algiers.
31. *Variegata*. Germany, Austria, Switz. France.
32. *Longicruris*. Hills of Portugal.
33. *Militaris*. England, Germ. Austr. Switzerl.
34. *Fusca*. Bohemia, Moravia, Austria, &c.
35. *Lactea*. Mountains of Barbary.
36. *Papilionacea*. Spain, Carniola.
37. *Rubra*. Austria. 38. *Iberica*. Iberia.
39. *Ensifolia*. Damp meadows of France.
40. *Elata*. Barbary, near La Calle.
41. *Palustris*. Germany and Austria.
42. *Pallens*. France, Austria, Italy, Switzerland.
43. *Parviflora*. Piedmont.
44. *Cordata*. Woods of Portugal.
45. *Hircina*. Engl. Germ. Austria, Carniola, &c.
46. *Latifolia*. England and other parts of Eur.
47. *Cruenta*. Mountains of Denmark.
48. *Sesquipedalis*. Portugal. 49. *Incarnata*. Eur.
50. *Sambucina*. Mountains of Europe.
51. *Maculata*. England and other pts. of Eur.
52. *Odoratissima*. Italy, France, Germany.
53. *Conopsea*. Engl. and other parts of Europe.
54. *Flava*. Virginia.
55. *Viridis*. France, Italy, Switz. Sweden, Norway.
56. *Bracteata*. Pennsyl. 58. *Nigra*. Europe.
57. *Obsoleta*. Do. 59. *Fuscescens*. Siberia.
60. *Spectabilis*. Virginia and Pennsylvania.
61. *Plantaginea*. Jamaica and Martinique.
62. *Virescens*. Pennsylvania.
63. *Hyperborea*. Iceland.
64. *Strateumatica*. Ceylon.
65. *Hirtella*. Woody mountains of Jamaica.
66. *Albida*. Denmark, Germ. Switzer. Austria.
67. *Koenigii*. Iceland. 74. *Tipuloides*. Kamschatka.
68. *Fimbriata*. Canada.
69. *Psycodes*. Do. Penns. 75. *Dentata*. China.
70. *Incisa*. Pennsylv. 76. *Atlantica*. Mt. Atlas
71. *Fissa*. Pennsylv. 77. *Mauritiana*. Mauritius.
72. *Tridentata*. Do.
73. *Sancta*. Palestine. 78. *Squamosa*. Bourb.
* 79. *Lacera*. Carolina. (*Mich*. ii. 156.)
* 80. *Provincialis*. France. (Decand. *Syn.*)
* 81. *Simia*. France. (Lam. *Enc*. iv. 593.)
* 82. *Robertiana*. At Toulon. (Loiseleur, *Fl. Gal.*)
* 83. *Ichneumonea*. Sierra Leone. (*Afz elius.*)
* 84. *Humilis*. Carolina. (*Michaux.*)
* 85. *Procera*. Sierra Leone. (*Michaux.*)

Class XX. Gynandria.

*86. *Membranacea.* Sierra Leone. (*Michaux.*)
*87. *Quinqueseta.* Carolina. (*Mich.* ii. p. 156.)
All perrennial.

See the remarks on the genus HABENARIA, among the new genera.

1589. HABENARIA. *Cor.* 5-pet. ringens, pet. sup. fornicato. *Labell.* basi subtus calcaratum. *Anth.* terminalis adnata. *Cornua* 2 staminiformia recta ad basin antheræ.

1. *Macroceratitis.* Jamaica. *Per.*
2. *Brachyceratitis.* Do. and Hispaniola. *Per.*

This genus is given under ORCHIS by Persoon. See the new genera at the end of this class.

1588. BONATEA. *Cor.* 5-pet. ring. pet. sup. fornicato. *Labell.* basi subtus calcaratum. *Styl.* alatus. *Anth.* loculamenta ad marginem alæ styli.

1. *Speciosa.* Cape of Good Hope. *Per.*

1608. LIMODORUM.. *Cor.* 5-pet. subpatens. *Labell.* basi antice in cornu liberum productum. *Anth.* terminalis.

1. *Tankervilliæ.* China. *Per.*
2. *Veratrifolium.* East Indies. *Per.*
3. *Boreale.* Lapl. Russia, Siber. Amer. *Per.*
4. *Striatum.* China and Japan. *Per.*
5. *Virens.* East Indies. *Per.*
6. *Carinatum.* East Indies. *Per.*
7. *Bidentatum.* East Indies. *Per.*
8. *Epidendroides.* Madras and Tranquebar. *Per.*
9. *Recurvum.* East Indies. *Per.*
10. *Triste.* Cape of Good Hope. *Per.*
11. *Falcatum.* Japan. *Per.*
12. *Longicornu.* Cape of Good Hope. *Per.*
13. *Eburneum.* Bourbon. *Per.*
14. *Spathulatum.* East Indies. *Shrub.*
15. *Orchideum.* East Indies. *Peren.*
16. *Complanatum.* East Indies. *Peren.*
17. *Clavatum.* East Indies. *Peren.*
18. *Subulatum.* East Indies. *Peren.*
19. *Pusillum.* East Indies. *Peren.*
20. *Funale.* East Indies and Jamaica. *Peren.*
21. *Filiforme.* East Indies and Hispaniola. *Per.*
22. *Fasciola.* Society Islands. *Peren.*
23. *Barbatum.* Cape of Good Hope. *Peren.*
24. *Hians.* Cape of Good Hope. *Peren.*
25. *Flexuosum.* West Indies. *Peren.*
26. *Abortivum.* France, Switz. Eng. Italy, and Germany. *Peren.*
27. *Epipogium.* Germ. Siber. Austr. Switz. *Per.*

*28. *Cristatum.* Sierra Leone. (*Afzelius.*)
*29. *Cucullatum.* (*Swartz.*)
*30. *Bidens.* (*Do.*)
*31. *Emarginatum.* (*Do.*)
*32. *Imbricatum.* (*Do.*)
*33. *Luridum.* (*Do.*)

1590. DISA. *Cor.* 5-pet. resupinata subring. *Pet.* supremum in calcar productum, 2 lateralia stylo accreta. *Labell.* ecalcaratum. *Anth.* terminalis adnata.

1. *Grandiflora.*
2. *Cornuta.*
3. *Macrantha.*
4. *Longicornis.*
5. *Draconis.*
6. *Rufescens.*
7. *Ferruginea.*
8. *Porrecta.*
9. *Cernua.*
10. *Physodes.*
11. *Chrysostachya.*
12. *Bracteata.*
13. *Torta.*
14. *Flexuosa.*
15. *Bifida.*
16. *Tenella.*
17. *Sagittalis.*
18. *Barbata.*
19. *Lacera.*
20. *Maculata.*
21. *Secunda.*
22. *Excelsa.*
23. *Venosa.*
24. *Spathulata.*
25. *Cylindrica.*
26. *Melaleuca.*
27. *Tenuifolia.*
28. *Patens.*

All perennial, and from the Cape.

1591. SATYRIUM. *Cor.* 5-pet. ring. pet. cum labello basi coalitis, supremum fornicatum postice bicalcaratum. *Anth.* stylo elongato sub stigmate terminali adnata.

1. *Cucullatum.*
2. *Membranaceum.*
3. *Coriifolium.*
4. *Erectum.*
5. *Parviflorum.*
6. *Foliosum.*
7. *Pumilum.*
8. *Striatum.*
9. *Bicallosum.*
10. *Bracteatum.*

All from the Cape. Persoon comprehends under his genus SATYRIUM. Sp. 43, 45, 56, 57, 61, 62, 65, and 76 of ORCHIS; and Sp. 1—5 of OPHRYS, together with the two following species:

1. *Viride.* Engl. and other pts. of Eur. *Pereu.*
2. *Albidum.* Engl. and other pts. of Eur. *Peren.*

SECT. II. *Orchideous, and without Spurs.*

1592. PTERYGODIUM. *Cor.* 5-pet. subringens, pet. lateralibus exterioribus horizontalibus concavis. *Labell.* medio styli inter loculos remotos antheræ insertum. *Stig.* posticum.

1. *Alatum.* Cape. *Per.*
2. *Catholicum.* Do. *Per.*
3. *Volucris.* Do. *Per.*
4. *Caffrum.* Do. *Per.*
5. *Inversum.* Do. *Per.*
6. *Atratum.* Do. *Per.*

1593. DISPERIS. *Cor.* 5-pet. ring. pet. lateralibus exterioribus horizontalibus subcalcaratis. *Labell.* e basi styli genitalibus connexum. *Anth.* velo spirali tecta.

1. *Capensis.* Cape of Good Hope. *Per.*
2. *Villosa.* Do. *Per.* 3. *Cucullata.* Do. *Per.*
4. *Secunda.* Do. *Peren.*
5. *Cordata.* Mauritius. *Peren.*

*6. *Alata.* Van Diemen's Island. (*Labillard.*)

1594. CORYCIUM. *Cor.* ring. 4-pet. pet. erectis, lateralibus basi ventricosis. *Labell.* apici styli supra antheram adnatam insertum.

1. *Orobanchoides.* Cape. *Per.*
2. *Crispum.* Do. *Per.* 3. *Vestitum.* Do. *Per.*
4. *Bicolorum.* Do. *Per.*

‡ 1595. OPHRYS. *Cor.* 5-pet. subring. pet. patentibus. *Labell.* e basi styli ecalcaratum patens. *Anth.* terminalis adnata.

1. *Monorchis.* Engl. and other pts. of Eur. *Per.*
2. *Alpina.* Mts. of Lapl. and Switz. *Per.*
3. *Anthropophora.* England, Italy, France, and Switzerland. *Per.*
4. *Anthropomorpha.* Hills of Portugal. *Per.*
5. *Lancea.* Java. *Peren.*
6. *Crucigera.* Rome. *Peren.*
7. *Myodes.* Engl. and other pts. of Eur. *Per.*
8. *Sphegifera.* Barbary. *Per.*
9. *Vespifera.* Barbary. *Per.*
10. *Apifera.* England and France. *Per.*
11. *Aranifera.* Engl. France, and Portugal. *Per.*
12. *Arachnites.* Germany, Austria, France, and Switzerland. *Peren.*
13. *Tenthridinifera.* Barbary. *Per.*
14. *Tabanifera.* Barbary. *Per.*
15. *Bombyliifera.* Portugal. *Per.*
16. *Picta.* Do. *Per.* 17. *Fusca.* Do. *Per.*
18. *Scolopax.* Portugal, Spain, and south of France. *Per.*
19. *Lutea.* Spain and Portugal. *Per.*

* 20. *Vernixia.* Portugal. (*Brotero.*)
* 21. *Barbata.* Carolina. (*Walter.*)

"Ophrydis, character optimus," says Mr Brown, "positus est in pedicellis massarum distinctis, singulis cucullo proprio inclusis, qua nota ab omnibus primo intuitu dignoscitur." The genuine species are, Sp. 7, 9, 10, 11, and some others lately published by Desfontaines and Cavanilles. See *Prodr.* p. 318.

1596. SERAPIAS, or HELLEBORINE of Persoon. *Cor.* 5-pet. ring. pet. conniventibus. *Labell.* ecalcaratum, lamina deflexa. *Anth.* stylo elongato adnata.

1. *Lingua.* Carniola, Switzerland, South of France, Italy, Spain, and Barbary. *Peren.*
2. *Cordigera.* Spain, Barbary, Italy, and the East. *Peren.*
3. *Oxyglottis.* Italy. *Peren.*

Under SERAPIAS, Persoon includes Sp. 1—3, 5—8 of EPIPACTIS; and he gives Sp. 1—3 of SERAPIAS under the genus HELLEBORINE.

1597. NEOTTIA. *Cor.* 5-pet. ring. pet. exterioribus lateralibus antice circa basin labelli ventricosam connexis. *Anth.* stylo acuminato parallela, postice inserta.

1. *Speciosa.* Warm parts of America. *Peren.*
2. *Elata.* Jamaica. *Peren.*
3. *Lanceolata.* Guiana and W. Indies. *Peren.*
4. *Diuretica.* Chili. *Peren.*
5. *Qadridentata.* W. Indies and Guiana. *Peren.*
6. *Spiralis.* Engl. France, Switz. Italy. *Peren.*
7. *Tortilis.* West Indies, China, Pennsylv. *Peren.*
8. *Cernua.* Virginia, Pennsylv. Canada. *Peren.*
9. *Adnata.* Jamaica and Hispaniola. *Peren.*
10. *Orchioides.* Dry parts of Jamaica. *Peren.*
11. *Repens.* Engl. Sweden, Germ. Sib. *Peren.*
12. *Pubescens.* From Canada to Florida. *Peren.*
13. *Calcarata.* Woods of St Domingo. *Peren.*
14. *Polystachya.* Woods of Jamaica. *Peren.*
15. *Flava.* Jamaica. *Peren.*
* 16. *Æstivalis.* Eur. and North Amer. (*Mich.*)
* 17. *Sinensis.* China. (*Loureiro.*)
* 18. *Australis.* New South Wales.

The last species is given by Mr Brown under the following generic character. "*Perianth.* ringens, foliolis lateralibus *ext.* antice labello imberbi subunguiculato suppositis; *int.* cum galea conniventibus. *Anth.* stigmati parallela." This character is accommodated to several unpublished species in the Banksian *Herbarium.* See *Prodr.* p. 349.

1598. CRANICHIS. *Cor.* 5-pet. resupinata subringens. *Labell.* fornicatum. *Anth.* stylo parallela postice inserta.

1. *Aphylla.* 2. *Diphylla.* 3. *Oligantha.*
4. *Stachyodes.* 5. *Muscosa.* 6. *Pauciflora.*
* 7. *Nodifolia.* Cochinchina. (*Loureiro.*)

Sp. 1—6 perennial, and from Jamaica.

1599. THELYMITRA. *Cor.* 5-pet. subregularis patens. *Labell.* pet. conforme. *Genitalia* cucullo bipenicillato cincta.

1. *Forsteri.* New Zealand. *Peren.*
2. *Ixioides.* New South Wales. *Peren.*
* 3. *Media.* * 4. *Canaliculata.* * 5. *Pauciflora.*
* 6. *Nuda.* * 7. *Angustifolia.* * 8. *Carnea.*
* 9. *Venosa.* * 10. *Tigrina.* * 11. *Fusco-lutea.*

Sp. 3—11, from New Holland and Van Diemen's Island, are given by Mr Brown under the following generic character: "*Perianth.* regulare subpatens. *Labell.* sessile foliolis conforme. *Anth.* stig. parallela, lobo medio cuculli trifidi inserta." *Prodr.* 314.

1600. DIURIS. *Cor.* 7-pet. subringenti-patens. *Pet.* 2 anteriora elongata *labello* ecalcarato supposita. *Anth.* Neottiæ.

1. *Maculata.* New South Wales. *Peren.*
* 2. *Aurea,* or *spathulata.* * 7. *Pauciflora.*
* 3. *Emarginata.* * 8. *Elongata.*
* 4. *Setacea.* * 9. *Alba.*
* 5. *Pedunculata.* * 10. *Longifolia.*
* 6. *Sulphurea.*

All from New Holland and Van Diemen's Island. See Brown's *Prodr.* p. 315.

1601. ARETHUSA. *Cor.* 5-pet. subring. foliolis subconniventibus. *Labell.* ecalcaratum. *Anth.* opercularis persistens. *Pollen* pulvereo-granulatum.

1. *Bulbosa.* Canada and Carolina. *Peren.*
2. *Ophioglopoides.* From Canada to Carolina. *Peren.*
3. *Verticillata.* Pennsylvania and Maryl. *Per.*
4. *Divaricata.* From Carolina to Florida. *Per.*
5. *Biplumata.* Straits of Magellan. *Peren.*
6. *Gentianoides.* Shady parts of Jamaica. *Per.*
7. *Pendula,* or *trianthophoros.* Kentucky. *Per.*
* 8. *Petræa.* Sierra Leone. (*Afzelius.*)

‡1602. EPIPACTIS. *Cor.* 5-pet. erecto-patens. *Labell.* ecalcaratum. *Anth.* opercularis, persistens. *Pollen* pulvereo-granulatum.

1. *Latifolia.* Woods of Europe. *Peren.*
2. *Palustris.* Meadows of Europe. *Peren.*
3. *Microphylla.* Germany and Hungary. *Per.*
4. *Pallens.* Woody mountains of Europe. *Per.*
5. *Ensifolia.* Woody mountains of Europe. *Per.*
6. *Rubra.* Groves of Europe. *Peren.*
7. *Erecta.* Japan. *Per.* 8. *Falcata.* Japan. *Per.*
9. *Nidus avis.* Eng. Sweden, Germ. &c. *Per.*
10. *Ovata.* Wet meadows of Europe. *Peren.*
11. *Cordata.* Eng. Sweden, Norway, &c. *Per.*
12. *Convallarioides.* New England. *Peren.*
13. *Camtschatea.* Siberia. *Peren.*
14. *Porrifolia.* New Zealand. *Peren.*
* 15. *Reflexa.* Van Diemen's Island. (*Labill.*)

Sp. 15. is given under SERAPIAS by Persoon. See Brown, *Prodr.* p. 322.

1603. MALAXIS. *Cor.* 5-pet. patens resupinata. *Labell.* concavo-patulum adscendens. *Anth.* opercularis.

1. *Spicata.* Jam. *Per.* 2. *Umbellulata.* Jam. *Per.*
3. *Ophioglossoides.* Pennsylvania, Carolina, and Florida. *Peren.*
4. *Monophyllos.* Europe. *Peren.*
5. *Rhedii.* East Indies and Society Isl. *Peren.*
6. *Odorata.* East Indies. *Peren.*
7. *Paludosa.* North of Europe. *Peren.*
8. *Liliifolia.* Canada, Pennsylv. Virginia. *Per.*
9. *Loesilii.* Germ. Sweden, Denmark. *Peren.*
10. *Nervosa.* Japan. *Per.* 11. *Cernua.* E. Ind. *Per.*
12. *Nutans.* East Indies. *Peren.*
13. *Caudata.* America.

‡ 1604. CYMBIDIUM. *Cor.* 5 pet. erecta vel patens. *Labell.* basi concavum ecalcaratum, lamina patula. *Anth.* opercularis decidua. *Pollen.* globosum.

1. *Coccineum.* Woods of Martinique. *Peren.*
2. *Tripterum.* Jamaica. *Peren.*
3. *Hirsutum.* Woods of Guiana. *Peren.*
4. *Vestitum.* Jamaica. *Peren.*
5. *Proliferum.* Jamaica. *Peren.*
6. *Echinocarpon.* Guiana and Jamaica. *Peren.*
7. *Muricatum.* *Per.* 8. *Trichocarpon.* *Per.*

9. *Glaucum.* *Peren.* 10. *Graminoides.* *Per.*
11. *Testæfolium.* *Peren.*
12. *Calceolariæ.* East Indies. *Peren.*
13. *Lineare.* Thick woods of Martinique. *Per.*
14. *Equitans.* E. Indies and Society Isles. *Per.*
15. *Teretifolium.* Jamaica. *Peren.*
16. *Serrulatum.* Jamaica. *Peren.*
17. *Globosum.* Woods of Jam. and Martin. *Per.*
18. *Autumnale.* New Zealand. *Peren.*
19. *Lycopodioides.* East Indies. *Peren.*
20. *Moschatum.* Birman Empire. *Peren.*
21. *Montanum.* Mountains of Jamaica. *Peren.*
22. *Clypeolum.* Society Islands. *Peren.*
23. *Triste.* New Caledonia. *Peren.*
24. *Nodosum.* On the coasts in the W. Indies. *Per.*
25. *Scriptum.* East Indies. *Peren.*
26. *Cucullatum.* West Indies. *Peren.*
27. *Aphyllum.* East Indies. *Peren.*
28. *Plantaginifolium.* East Indies. *Peren.*
29. *Aloifolium.* Malabar. *Peren.*
30. *Pendulum.* East Indies. *Peren.*
31. *Ovatum.* East Indies. *Peren.*
32. *Guttatum.* Jamaica. *Peren.*
33. *Juncifolium.* West Indies. *Peren.*
34. *Tessellatum.* East Indies. *Peren.*
35. *Furvum.* Amboyna. *Peren.*
36. *Præmorsum.* East Indies. *Peren.*
37. *Flabelliforme.* Jamaica. *Peren.*
38. *Subulatum.* Jamaica. *Peren.*
39. *Tenuifolium.* East Indies. *Peren.*
40. *Triquetrum.* Jamaica. *Peren.*
41. *Pusillum.* Surinam. *Peren.*
42. *Pulchellum.* From Canada to Florida. *Per.*
43. *Verecundum.* Bahama Islands. *Peren.*
44. *Altum.* W. Ind. *Per.* 45. *Luteum.* Chili. *Per.*
46. *Virescens.* Chili. *Per.* 47. *Diurnum.* Carac. *Pe.*
48. *Rigidum.* West Indies. *Peren.*
49. *Hyemale.* Pennsylvania. *Peren.*
50. *Utriculatum.* Jamaica and St Domingo. *Per.*
51. *Giganteum.* Cape. *Per.* 52. *Tabulare.* Do. *Per.*
53. *Pedicellatum.* Cape of Good Hope. *Peren.*
54. *Aculeatum.* Cape of Good Hope. *Peren.*
55. *Squamatum.* New Caledonia. *Peren.*
56. *Corallorhizon.* Woods of Scotland, &c. *Per.*
57. *Odontorhizon.* Canada, New Engl. Penns. *Per.*
58. *Grandiflorum* Meadows of Guiana. *Peren.*
59. *Ensifolium.* China and Japan. *Peren.*
60. *Striatum.* Japan. *Per.* 61. *Sinense.* China. *Per.*
* 62. *Canaliculatum.* * 64. *Reflexum.*
* 63. *Suave.* * 65. *Pictum.*

Sp. 62—65 from New Holland.

"Genus nimis arificiale," says Mr Brown, "posth. certe dividendum." *Prodr.* p. 331.

05. ONCIDIUM. *Cor.* 4 seu 5 pet. patens. *Labell.* planum basi tuberculosum. *Anth.* opercularis decidua.

1. *Carthagenense.* Woods of Carthagena. *Per.*
2. *Altissimum.* Martinique and Jamaica. *Peren.*
3. *Tetrapetalum.* Woods of Jamaica. *Peren.*
4. *Variegatum.* Jamaica. *Peren.*
5. *Cebolleta.* Coasts of Carthagena. *Peren.*

06. EPIDENDRUM. *Cor.* 5-pet. patens. *Labell.* basi tubulatum stylo antice annexum ecalcaratum. *Anth.* opercularis decidua.

1. *Cochleatum.* Bahama Isles, Jam. Martinique.
2. *Fragrans.* Jam. *Per.* 5. *Polybulbon.* Jam.
3. *Bifidum.* W. Indies. 6. *Sessile.* East Indies.
4. *Liliifolium.* E. Ind. 7. *Labiatum.* Hispan.
8. *Atropurpureum.* West Indies.
9. *Amabile.* E. Indies. 13. *Nutans.* Jamaica.
10. *Patens.* W. Indies. 14. *Umbellatum.* Do.
11. *Verrucosum.* Do. 15. *Diffusum.* Do.
12. *Punctatum.* Do.
16. *Ramosum.* Woods of Martinique and Jamaica.
17. *Rigidum.* Do. 18. *Obtusifolium.* W. Ind.
19. *Bifarium.* Jamaica.
20. *Nocturnum.* Woods of Jam. and Martinique.
21. *Ciliare.* Woods of Martinique.
22. *Secundum.* Do. 23. *Fuscatum.* Do.
24. *Elongatum.* The Caraccas.
25. *Vomiforme.* Jamaic. * 37. *Ferrugineum.*
26. *Angustifolium.* Do. * 38. *Corymbosum.*
* 27. *Grandiflorum.* * 39. *Croceum.*
* 28. *Antenniferum.* * 40. *Volubile.*
* 29. *Coronatum.* * 41. *Emarginatum.*
* 30. *Maculatum.* * 42. *Biflorum.*
* 31. *Cristatum.* * 43. *Triflorum.*
* 32. *Paniculatum.* * 44. *Acuminatum.*
* 33. *Cordatum.* * 45. *Scabrum.*
* 34. *Viride.* * 46. *Lineare.*
* 35. *Parviflorum.* * 47. *Equitans.*
* 36. *Nutans.*

Sp. 1—25 perennial. Sp. 27—47 from Peru, see *Fl. Per. Syst.* Humboldt, who discovered Sp. 27, 28, ranks this genus under the order DIANDRIA.

Class XX. Gynandria.

1607. VANILLA. *Cor.* 5-pet. patens. *Labell.* basi subcuculatum ecalcaratum, lamina patente. *Anth.* opercularis decidua. *Caps.* siliquæformis carnosa.

1. *Aromatica.* Warm parts of America. *Shrub.*
2. *Angustifolia.* Japan. *Shrub.*
3. *Claviculata.* Jamaica and Hispaniola. *Shrub.*

1609. AERIDES. *Cor.* 5-pet. patens. *Labell.* saccatum. *Anth.* terminalis.

1. *Retusum.* E. Ind. *Per.* 2. *Præmorsum.* Do. *Per.*
3. *Lasiopetalum.* East Indies. *Peren.*
4. *Matutinum.* East Indies. *Shrub.*
5. *Odoratum.* China and Cochinchina. *Shrub.*
6. *Arachnites.* Woods of Japan. *Shrub.*
7. *Coriaceum.* North of Madagascar. *Shrub.*

1610. DENDROBIUM. *Cor.* 5-pet. erecto patens; lateralia ext. antice circa basin labelli conniventia vel connata sæpe cornu mentientia. *Anth.* terminalis.

1. *Palmifolium.* Jam. 3. *Sanguineum.* Do.
2. *Barringtoniæ.* Do. 4. *Myosurus.* Soc. Isles.
5. *Utricularioides.* Jamaica, Hispaniola.
6. *Testiculatum.* Hispaniola.
7. *Carinatum.* Island of Luzon.
8. *Tribuloides.* Jam. 15. *Graminifolium.* W. Indies.
9. *Corniculatum.* Do.
10. *Lanceola.* Jam. 16. *Ruscifolium.* Jam.
11. *Sertularioides.* Do. 17. *Biflorum.* Soc. Isles.
12. *Racemiflorum.* Do. 18. *Anceps.* E. Indies.
13. *Alpestre.* Hispan. 19. *Moniliforme.* Japan.
14. *Laxum.* Jamaica. 20. *Crumenatum.* Java.
21. *Polystachyon.* America, Africa, and Asia.
22. *Crispatum.* Soc. Isles. 23. *Javanicum.* Java.
24. *Linguæforme.* Islands of the Pacific Ocean.
25. *Reptans.* Mauritius.
* 26. *Moscatum.* Asia. (Syme's *Embassy to Ava.*)
* 27. *Galeatum.* * 36. *Ligulatum.*
* 28. *Pumilum.* * 37. *Hastatum.*
* 29. *Roseum.* * 38. *Paniculatum.*
* 30. *Paniculatum.* * 39. *Cuneiforme.*
* 31. *Longipetalum.* * 40. *Alatum.*
* 32. *Platipetalum.* * 41. *Bicolor.*
* 33. *Ciliatum.* * 42. *Tricolor.*
* 34. *Angulatum.* * 43. *Triphyllum.*
* 35. *Variegatum.* * 44. *Undatiflorus.*

*45. *Proliferum.*
*46. *Ramosum.*
*47. *Undulatum.*
*48. *Speciosum.*
*49. *Æmulum.*
*50. *Cunaliculatum.*
*51. *Rigidum.*
*52. *Teretifolium.*

Sp. 1—25 perennial. Sp. 27—30 from SierraLeone. Sp, 31—47 from Peru, see the *Fl. Per. Syst.* p. 219. Persoon gives these last species under the subgenus MAXILLARIA. Sp. 48—53 from New Holland, see Brown's *Prodr.* p. 332.

1611. STELIS. *Cor.* subdup. *Pet.* ext. subcoalita, in t. labello conformia apice subfornicata supra styl. *Anth.* opercularis decidua.

1. *Ophioglossoides.* Jamaica, Martinique. *Per.*
2. *Micrantha.* Jamaica.
3. *Acutiflora.* Peru.
4. *Lanceolata.* Do.
5. *Polystachya.* Do.
6. *Oblonga.* Do.
7. *Purpurea.* Do.
8. *Revoluta.* Do.
9. *Cordata.* Do.
*10. *Contorta.* Do.
*11. *Parviflora.* Do.
*12. *Aspera.* Do.
*13. *Spiralis.* Do.

Sp. 3—13 are given by Persoon under the subgenus HUMBOLDIA.

1612. LEPANTHES. *Cor.* sub-5-pet. patens, pet. ext. basi subcoalitis; int. difformibus. *Labell.* nullum, sed stylus basi vel apice alatus. *Anth.* opercularis decidua.

1. *Concinna.* Jamaica. *Peren.*
2. *Pulchella.* Do.
3. *Tridentata.* Do.
4. *Cochlearifolia.* Do.

DIANDRIA.

‡ 1613. CYPRIPEDIUM. *Cor.* 4-pet. patens. *Labell.* ventricosum inflatum. *Styl.* superne lobo petaloideo appendiculatus.

1. *Calceolus.* Engl. and other pts. of Europe. *Per.*
2. *Candidum.* Pennsylvania. *Peren.*
3. *Parviflorum.* Virginia. *Peren.*
4. *Pubescens.* North America. *Peren.*
5. *Spectabile.* Canada. *Peren.*
6. *Humile.* From Canada to Carolina. *Per.*
7. *Ventricosum.* Eastern parts of Siberia. *Per.*
8. *Macranthos.* Do. *Per.* 9. *Guttatum.* Do. *Per.*
10. *Japonicum.* Japan. *Peren.*

1614. STYLIDIUM. *Cal.* 2-lab. *Cor.* tubulosa irregularis 5 part. lacinia anteriore 3-part. *Caps.* bilocularis 2-valv. polysperma.

1. *Graminifolium.* New Holland. *Peren.*
2. *Lineare.* New Holland. *Peren.*
3. *Tenellum.* East Indies, and N. Holland.
4. *Uliginosum.* Ceylon.
*5. *Pilosum.*
*6. *Reduplicatum.*
*7. *Hirsutum.*
*8. *Umbellatum.*
*9. *Armeria.*
*10. *Melostachys.*
*11. *Setaceum.*
*12. *Spinulosum.*
*13. *Cæspitosum.*
*14. *Piliferum.*
*15. *Assimile.*
*16. *Spathulatum.*
*17. *Glaucum.*
*18. *Eriorhizum.*
*19. *Floribundua.*
*20. *Junceum.*
*21. *Violaceum.*
*22. *Luteum.*
*23. *Amœnum.*
*24. *Articulatum.*
*25. *Diversifolium.*
*26. *Scandens.*
*27. *Fruticosum.*
*28. *Tenuifolium.*
*29. *Calcaratum.*
*30. *Capillare.*
*31. *Rotundifolium.*
*32. *Crassifolium.*
*33. *Corymbosum.*
*34. *Inundatum.*
*35. *Despectum.*
*36. *Diffusum.*
*37. *Pygmæum.*
*38. *Repens.*
*39. *Guttatum.*
*40. *Pedunculatum.*
*41. *Breviscapum.*
*42. *Fasciculatus.*
*43. *Falcatum.*
*44. *Adnatum.*
*45. *Propinquum.*
*46. *Alcinoides.*

Sp. 5—46, from New Holland and Van Diemen's Island, are given by Mr Brown under the following character: " *Cal.* 2-lab. *Cor.* irreg. 5-fida, lacinia 5ta. (*Labello*) dissimili, minore, deflexa (raro porrecta,) reliquis patentibus (raro geminatim cohærentibus. *Columna* reclinata, duplici flexura: *Antheris* bilobis, lobis divaricatissimis; *Stigmate* obtusa, indiviso. *Caps.* 2-loc. dissepimento superne, quandoque incompleto." *Prodr.* p. 566. See Persoon's *Synopsis*, v. 1. p. 210.

1615. FORSTERA. *Cal.* dup. inferus 2 seu 3-phyll.; superus 3 seu 6-phyll. *Cor.* tubuloso-campan. 5 seu 6-fida. *Caps.* unilocularis polysperma.

1. *Sedifolia.* Summits of the highest mountains of New Zealand. *Peren.*
2. *Muscifolia.* Terra del Fuego. *Peren.*

1616. GUNNERA. *Cal.* 2-dent. superus. *Cor.* 0. *Styl.* 2-part. *Drupa* 1-sperma dentibus calycis coronata.

1. *Perpensa.* Cape of Good Hope. *Peren.*
2. *Plicata.* Straits of Magellan. *Peren.*
3. *Scabra.* Wet parts of Peru and Chili. *Per.*

TRIANDRIA.

1617. SALACIA. *Cal.* 5-part. *Cor.* 5-pet. *Anth.* germinis apici insidentes. *Styl.* brevissimus.

1. *Chinensis.* China. *Shrub.*

1618. RHOPIUM. *Cal.* 6-part. *Cor.* 0. *Anth.* 3-loc. disjunctis medio stylorum insertæ. *Styli* 3. *Caps.* tricocca, loc. 2-spermis.

1. *Citrifolium.* Woods of Guiana. *Shrub.*

HEXANDRIA.

1619. ARISTOLOCHIA. *Cal.* 0. *Cor.* 1-pet. ligulata basi ventricosa. *Caps.* 6-loc. polysperma infera.

1. *Bilobata.* Dominica. *Shrub.*
2. *Trilobata.* Jamaica. *Shrub.*
3. *Surinamensis.* Surinam. *Shrub.*
4. *Kaempferi.* Japan. *Shrub.*
5. *Pentandra.* Havannah. *Shrub.*
6. *Panduriformis.* Caraccas. *Shrub.*
7. *Peltata.* St Domingo. *Shrub.*
8. *Reniformis.* St Domingo. *Shrub.*
9. *Maxima.* New Spain. *Shrub.*
10. *Bilabiata.* Hispaniola. *Shrub.*
11. *Caudata.* St Domingo. *Shrub.*
12. *Punctata.* St Domingo. *Shrub.*
13. *Obtusata.* Caribbees. *Shrub.*
14. *Grandiflora.* Jamaica. *Shrub.*
15. *Ringens.* Jamaica, Guiana, Brasil. *Sh*[illegible]
16. *Sipho.* Alleghany mountains. *Shrub.*
17. *Odoratissima.* Jamaica, Mexico. *Shr*[illegible]
18. *Barbata.* Caraccas. *Shrub.*
19. *Anguicida.* Mexico and Carthagena. [illegible]
20. *Indica.* East Indies and N. Holl. *Per*[illegible]
21. *Acuminata.* Mauritius. *Shrub.*
22. *Baetica.* Spain and Candia. *Shrub.*
23. *Glauca.* Portugal and Barbary. *Sh*[illegible]*ub.*
24. *Altissima.* Candia and Barbary. *Shr*[illegible]*b.*
25. *Sempervirens.* Candia. *Shrub.*
26. *Longa.* Spain, France, Italy, Carniola [illegible] *Per.*
27. *Serpentaria.* Virginia. *Peren.*

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] New Zealand.

[illegible]

[illegible] New South Wales.

[illegible]

[illegible] New Zealand [illegible]

[illegible] New Zealand.

[illegible] New South Wales.

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[illegible] New Zealand.

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[illegible] New South Wales.

[illegible]

[illegible] New South Wales.

XII. [illegible] Palpi [illegible] unguiculate [illegible] Label unguiculate-

Class XX
Gynandria.

tum, inappendiculatum, disco pubescenti, eglanduloso. *Columna* semiteres, apice simplici. *Anth.* terminalis, persistens, mutica, loculis approximatis. *Massæ Pollinis* in singulo loculo quaternæ. (*Id.* p. 322.)

1. *Autumnalis.* (*Epipactis cucullata* of Labill.)

XIII. Caladenia. *Perianth.* 2 lab, extus glandulosum, labio sup. planiusculo. *Labell.* unguiculatum, cucullatum, subtrilobum, v. apice angustatum, disco glandulis seriatis ornato. *Columna* membranaceo-dilatata. *Anth.* terminalis, persistens, loc. approximatis. *Massæ Pollinis* in singulo loc. binæ compressæ semibilobæ, pulvereæ. (*Id.* 323.)

1. *Alba.*
2. *Carnea.*
3. *Cærulea.*
4. *Deformis.*
5. *Alata.*
6. *Flava.*
7. *Latifolia.*
8. *Gracilis.*
9. *Testacea.*
10. *Congesta.*
11. *Filamentosa.*
12. *Patersoni.*
13. *Dilatata.*
14. *Menziesii.*
15. *Macrophylla.*

All from New Holland and Van Diemen's Island.

XIV. Lyperanthus. *Perianth.* ringens, extus eglandulosum foliolo postico *exteriorum* fornicato; reliquis planiusculis, subæqualibus. *Labell.* brevius, marginibus adscendentibus semicucullatum, apice angustatum, disco glanduloso v. papuloso. *Colum.* linearis. *Anth.* terminalis, persistens, loc. approximatis. *Massæ Pollinis* in loc. singulo binæ pulvereæ. (*Id.* p. 325.)

1. *Suaveolens.* New South Wales.
2. *Ellipticus.* Do. 3. *Nigricans.* N. Holl.

XV. Glossodia. *Perianth.* foliolis quinque, æqualibus, patentibus. *Labell.* dissimile, brevius, indivisum, eglandulosum. *Appendix* inter lab. et columnam. *Anth.* colum. membranaceo dilatatum terminans, loc. approximatis. *Massæ Pollinis* in singulo loculo binæ, compressæ, pulvereæ. (*Id.* p. 325.)

1. *Major.* N. South Wales. 2. *Minor.* Do.

XVI. Pterostylis. *Perianth.* ringens, tetraphyll. foliolo inferiore 2-fid. (é duobus infra cohærentibus conflato.) *Labell.* unguiculatum, subinclusum. *Lam.* basi appendiculata v. gibbosa. *Ungue* infra lab. inferiore connato. *Colum.* basi galea connata, apice alata. *Anth.* terminalis, persistens loc. approximatis. *Massæ Pollinis* in singulo loc. binæ, compressæ, pulvereæ, *Stig.* medio columnæ adnatum. (*Id.* p. 326.)

1. *Concinna.*
2. *Ophioglossa.*
3. *Curta.*
4. *Acuminata.*
5. *Pedunculata.*
6. *Cucullata.*
7. *Nana.*
8. *Nutans.*
9. *Obtusa.*
10. *Reflexa.* (*Disperis alata* of Labill.)
11. *Revoluta.*
12. *Grandiflora.*
13. *Parviflora.*
14. *Longifolia.*
15. *Squamata.*
16. *Rufa.*
17. *Gibbosa.*
18. *Mutica.*
19. *Dubia.*

XVII. Corysanthes. *Perianth.* ringens; *Galea* magna; *Labio inferiore* 4-part, nano, a lab. occultato. *Labell.* maximum, cucullatum, v. tubulosum. *Anth.* terminalis 1-loc. 1 semi-2-val. persistens. *Massæ Pollinis* 4, pulvereæ. (*Id.* p. 378.)

1. *Fimbriata.* New South Wales.
2. *Unguiculata.* Do. 3. *Bicalcarata.* Do.

XVIII. Caleana. *Perianth.* foliolis quinque subæqualibus, angustis. *Labell.* posticum, unguiculatum; *Lamina* peltata, cava, foramine exteriore. *Colum.* petaloideo-dilatata. *Anth.* terminalis, persistens, loc. approximatis. *Massæ Pollinis* in singulo loculo binæ, pulvereæ. (*Id.* p. 329.)

1. *Major.* N. S. Wales. 2. *Minor.* Do.

XIX. Gastrodia. *Perianth.* 1-phyll. tubulosum, ore 5-lobo, lobis infra secundis. *Labell.* inclusum, liberum, unguiculatum, columnæ incumbens. *Colum.* longa, apice cavo, basi antice incrassata ubi stigma. *Anth.* terminalis, mobilis, decidua, loculis approximatis. *Massæ Pollinis* e particulatis angulatis, majusculis, elastice cohærentibus. (*Id.* p. 330.)

1. *Sesamoides.* New South Wales.

XX. Dipodium. *Perianthii* foliola 5, æqualia patentia. *Labell.* dissimile, 3-fid. disco barbato, basi saccata. *Colum.* semi-cylindracea. *Anth.* terminalis, mobilis, decidua. *Massæ Pollinis* in singulis loc. singulæ, lobulo interiore auctæ, filis distinctis glandulæ stig. affixæ. (*Id.* p. 330.)

1. *Punctatum.* (*Dendrob. punct.* of Smith.)

XXI. Sarcochilus. *Perianthii* foliola 5, æqualia, patentia, duo exteriora cum ungue labelli subtus connata. *Labell.* posticum ecalcaratum, ungue columna continuo; Laminâ calceiformi, lobo intermedio carnoso, solido. *Anth.* terminalis, mobilis, decidua. *Pollen* cereaceum. (*Id.* p. 332.)

1. *Falcatus.* New South Wales.

Diandria.

XXII. Sobralia. *Cor.* resupinata. *Pet.* 5, oblonga, patentissima, subdeflexa, æqualia, 2-interiora paullo angustiora. *Lab.* inferius obcordatum fimbriatum superius sublineare, 3-fid. canaliculatum. (Bulbi fasciculati.) (*Flor. Per. Syst.* p. 232.)

1. *Dichotoma.* Peru.
2. *Biflora.* Do. 3. *Amplexicaulis.* Do.

XXIII. Anguloa. *Cal.* connivens, resupinatus. *Labell.* pedicellatum, lamina urceolata. Sw. (*Nect.* chrysalidiforme, labio inferiore subdoliiformi, interius scisso, pone emarginaturam acumine reflexo, superius clavato 3-cuspidato. *Flor. Per. Syst.* p. 228.)

1. *Uniflora.* Peru.

XXIV. Gongora. *Cal.* irregularis, patens resupinatus. *Labell.* erectum, lamina convexa apice cornuta, dorso gibboso. (*Lab.* inferius sacciforme. *Fl. Per.*) *Anth.* opercularis, decidua.

1. *Quinquenervis.* Peru. (*Fl. Per. Syst.* p. 227.)

XXV. Masdevallia. *Cal.* dup.: ext. campan. 3-fid. lacin. apice corniculatis; int. diphyll. *Anth.* opercularis, decidua. Sw. (*Nect.* 4-phyll. fol. lateralibus maxillæformibus inf. pedicellato subtus fere carinato, sup. lineari, brevi, canaliculato. (*Fl. Per.*)

1. *Uniflora.* Peru. (*Fl. Per. Syst.* p. 238.)

XXVI. Bletia. *Cor.* resupinata. *Pet.* 5 patentia oblongo-lanceolata, subæqualia, 2 interiora latiora. *Nect.* obverse conicum, labio inferiore subtus carinato 3-lobo, lobo intermedio magno, superiori lineari-oblongo. *Anth.* 8.

1. *Catenulata.*
2. *Repanda.*
3. *Ensiformis.*
4. *Uniflora.*
5. *Parviflora*

From Peru, see *Flor. Per. Syst.* p. 229.

XXVII. Fernandesia. *Pet.* 5, concava æqualia, conniventia. *Nect.* labium inferius obovatum, superius breve curvatum. (*Rad.* fasciculatæ. *Caul.*

1628. Casuarina. Mas. *Ament.* filiforme. *Cal.* 2-valv. *Cor.* 0.—Fem. *Ament.* globosum. *Cal.* squama ovata. *Cor.* 0. *Caps.* 2-valv. 1-sperm. *Sem.* apice alatum.
- 1. *Equisetifolia.* East Indies and Islands of the Pacific Ocean. *Shrub.*
- 2. *Nodiflora.* New Caledonia. *Shrub.*
- 3. *Stricta.* New Holland. *Shrub.*
- 4. *Distyla.* Do. *Shr.* 5. *Torulosa.* Do. *Shr.*
- *6. *Africana.* East of Africa. (*Loureiro.*)
- *7. *Quadrivalvis.* New Holland. (*Labill.*)

1620. Cynomorium. Mas. *Ament.* imbricatum. *Cal.* 4-phyll. *Cor.* 0.—Fem. in eodem amento. *Cal.* 4-phyll. sup. *Cor.* 0. *Styl.* 1. *Sem.* 1, subrotundum.
- 1. *Coccineum.* Barbary, Malta, Sicily. *Peren.*
- 2. *Jamaicense.* Jamaica. *Peren.*
- 3. *Balanophora.* Island of Tanna. *Peren.*
- 4. *Cajennense.* Cayenne. *Peren.*

1627. Artocarpus. Mas. *Ament.* cylindricum. *Cal.* 0. *Cor.* 2-pet. *Fil.* longitudine cor.—Fem. *Cal.* 0. *Cor.* 0. *Germ.* numerosa in globum collecta. *Styl.* filiformis. *Drupa* composita.
- 1. *Incisa.* Moluccas, and the Islands of the Pacific Ocean. *Shrub.*
- 2. *Integrifolia.* East Indies. *Shrub.*
- 3. *Philippensis.* Philippine Islands. *Shrub.*
- 4. *Pubescens.* Malabar. *Shrub.*
- *5. *Polyphema.* Cochinchina. (*Loureiro.*)

Diandria.

1631. Anguria. Mas. *Cal.* 5-fid. *Cor.* 5-pet.—Fem. *Cal.* 5-fid. *Cor.* 5-pet. *Pomum* inferum, 2-loc. polyspermum.
- 1. *Trilobata.* Woods of Carthagena. *Peren.*
- 2. *Pedata.* St Domingo. *Peren.*
- 3. *Trifoliata.* St Domingo.

‡ 1632. Lemna. Mas. *Cal.* 1-phyll. *Cor.* 0.—Fem. *Cal.* 1-phyll. *Cor.* 0. *Styl.* 1. *Caps.* 1-loc. 2-sperma.
- 1. *Trisulca.* England and New Holland. *Per.*
- 2. *Minor.* Engl. America, N. Holland. *Per.*
- 3. *Gibba.* Engl. and other pts. of Europe. *Per.*
- 4. *Polyrhiza.* N. of Europe and America. *Per.*
- 5. *Obcordata.* East Indies.
- 6. *Arrhiza.* Italy and France.

See Brown's *Prodromus*, p. 345.

1633. Podostemum. Mas. *Cal.* 0. *Cor.* 0. *Stam.* 2, pedicello affixa.—Fem. *Cal.* 0. *Cor.* 0. *Germ.* ovatum. *Stig.* 2 sessilia. *Caps.* 2-loc. 2 valv. polysperma.
- 1. *Ceratophyllum.* Salt rocks river Ohio. *Per.*

Triandria.

1636. Zea. Mas. in distinctis spicis. *Cal.* gluma 2-flora mutica. *Cor.* gl. mutica.—Fem. *Cal.* gluma 2-valv. *Cor.* gl. 2-valv. *Styl.* 1, filiform. pendulus. *Sem.* solitaria, recept. oblongo immersa.
- 1. *Mays.* America. *Ann.*
- 2. *Curagua.* Chili. *Ann.*

1637. Tripsacum. Mas. *Cal.* gl. 2-flora, ext. masculo, int. neutro. *Cor.* gl. membranacea.—Fem. *Cal.* gl. 1-flora, involucro tecto 1-phyllo sinubus perforato. *Cor.* gl. 2-valv. *Styl.* 2. *Sem.* 1.
- 1. *Dactyloides.* Virginia and Carolina. *Peren.*
- 2. *Monostachyon.* South Carolina. *Peren.*
- 3. *Cylindricum.* Sandy parts of Florida.
- 4. *Hermaphroditum.* Jamaica. *Ann.*

1638. Coix. Mas. in spicis remotis. *Cal.* gl. 2-flora, mutica. *Cor.* gl. mutica.—Fem. *Cal.* gl. 2-flora. *Cor.* gl. mutica. *Styl.* 2-part. *Sem.* calyce ossificato tectum.
- 1. *Lachryma.* East Indies. *Peren.*
- 2. *Agrestis.* Amboyna and Cochinchina. *Per.*
- 3. *Arundinacea.* Near Transchaur. *Peren.*

1640. Olyra. Mas. *Cal.* gl. 1-flora, subaristata. *Cor.* 0.—Fem. *Cal.* gl. 1-flora, patula ovata aristata. *Cor.* gl. 2-valv. mutica. *Styl.* 2-fid. *Sem.* cartilagineum.
- 1. *Paniculata.* Jamaica. *Peren.*
- 2. *Pauciflora.* Jamaica. *Ann.*
- 3. *Orientalis.* Cochinchina.

1639. Zeugites. *Cal.* commun. gl. 2-valv. 3-flora, flore intermedio femineo lateralibus masc. Mas. *Cal.* proprius 0. *Cor.* gl. 2-valv.—Fem. *Cal.* propr. 0. *Cor.* gl. 1-valv. *Styl.* 2-fid. *Sem.* oblongum.
- 1. *Americanus.* Mountains of Jamaica. *Per.*

1641. Kobresia. Mas. *Ament.* imbric. *Cal.* squama solitaria. *Cor.* 0.—Fem. *Ament.* imbric. *Cal.* squama plerumque dupl. altera plana, alt. germen involvens. *Cor.* 0. *Stig.* 3. *Nux* subtriquetra nuda.
- 1. *Scirpina.* Mts. of Savoy, Tyrol, &c. *Peren.*
- 2. *Caricina.* Mount Cenis. *Peren.*
- 3. *Cyperina.* Caraccas. *Peren.*

‡ 1642. Carex. Mas. *Ament.* imbric. *Cal.* squama solitaria. *Cor.* 0.—Fem. *Ament.* imbric. *Cal.* squama solitaria. *Cor.* ventricosa 1-pet. apice 2-dent. *Stig.* 2 seu 3. *Nux* 3-quetra corolla persistenti inclusa.
- 1. *Dioica.* England, Germany, &c. *Peren.*
- 2. *Davalliana.* Scotland, Germany, &c. *Pere*
- 3. *Sterilis.* Pennsylvania. *Peren.*
- 4. *Uncinata.* New Zealand.
- 5. *Hamata.* Jamaica, Chili, Mauritius.
- 6. *Crenacea.* South America.
- 7. *Capitata.* Lapland and Norway.
- 8. *Wildenowii.* North America.
- 9. *Pauciflora.* Scotland, Sweden, &c.
- 10. *Microglochin.* North of Lapland.
- 11. *Obtusata.* Oeland.
- 12. *Polytrichoides.* Pennsylvania.
- 13. *Pulicaris.* Engl. and other parts of Europe.
- 14. *Pyrenaica.* The Pyrenees.
- 15. *Petræa.* Hills of Lapland.
- 16. *Rupestris.* Mountains of Savoy.
- 17. *Squarrosa.* Canada.
- 18. *Cyperoides.* Bohemia, Siberia, &c.
- 19. *Baldensis.* Mount Baldo.
- 20. *Fœtida.* Mountains of Switzerland, &c.
- 21. *Incurva.* England and Denmark.
- 22. *Stenophylla.* Tyrol, Austria, &c.
- 23. *Curvula.* Mts. of Switzerland, Savoy, &c.
- 24. *Simpliciuscula.* England.
- 25. *Chordorrhiza.* North of Sweden.
- 26. *Cephalophora.* Pennsylvania.
- 27. *Villarsii.* Mountains of Dauphiny.
- 28. *Distachya.* Mountains of Salzburg.
- 29. *Atrata.* Britain, Lapland, and Norway.
- 30. *Magellanica.* Straits of Magellan.
- 31. *Bicolor.* Mt. Cenis. 32. *Pedunculata.* Pennsyl.
- 33. *Linckii.* Portugal.

34. *Arenaria.* Engl. and other parts of Europe.
35. *Intermedia.* Engl. Germany, Austria, France.
36. *Repens.* Torrents of Piedmont.
37. *Schreberi.* Germany. 38. *Ammophila.* Spain.
39. *Schœnoides.* Austria and Hungary.
40. *Rivularis.* At Pest in Hungary.
41. *Capensis.* Cape of Good Hope.
42. *Norvegica.* Coasts of Norway, &c.
43. *Helenostes.* Marshy parts of Sweden.
44. *Tenuiflora.* Lapland.
45. *Lobata.* Switzerland and Piedmont.
46. *Leporina.* Lapland, Switzerland, Carinthia.
47. *Ovalis.* England and other parts of Europe.
48. *Lagopodioides.* North America.
49. *Scoparia.* North America.
50. *Muhlenbergii.* North America.
51. *Vulpina.* Engl. and other parts of Europe.
52. *Glomerata.* Cape of Good Hope.
53. *Nemorosa.* Groves of Germany and Hung.
54. *Stipata.* Pennsylvania. 55. *Divisa.* England.
56. *Brizoides.* Germany, Switzerland, Italy.
57. *Muricata.* England and other parts of Europe.
58. *Divulsa.* England, Italy, Austria.
59. *Retroflexa.* Pennsylvania.
60. *Stellulata.* Engl. and other parts of Europe.
61. *Rosea.* North America.
62. *Sparganioides.* Pennsylvania.
63. *Scirpoides.* N. Amer. 65. *Remotiuscula.* Sib.
64. *Loliacea.* Sweden. 66. *Gibba.* Japan.
67. *Axillaris.* England.
68. *Remota.* Engl. and other parts of Europe.
69. *Gebhardii.* Mountains of Salzburg.
70. *Elongata.* Sweden and Germany.
71. *Curta.* England and other parts of Europe.
72. *Festucacea.* N. Amer. 73. *Straminea.* Do.
74. *Multiflora.* Pennsylvania.
75. *Paradoxa.* Germany.
76. *Teretiuscula.* Germany and England.
77. *Paniculata.* Engl. Germany, Switz. France.
78. *Lusitanica.* Portugal. 80. *Spartea.* Cape.
79. *Brunnea.* Japan. 81. *Indica.* Bourbon.
82. *Ramosa.* Mauritius.
83. *Polystachya.* Mountains of Jamaica.
84. *Cladostachya.* Do. 87. *Fasciculata.* Portu.
85. *Scabrella.* Ditto. 88. *Forsteri.* N. Zeal.
86. *Cruciata.* Canton. 89. *Geminata.* Ditto.
90. *Ambigua.* Mountains of Portugal.
91. *Depressa.* Mountains of Portugal.
92. *Thuringiaca.* Thuringia.
93. *Michrostachya.* Sweden.
94. *Virescens.* Pennsyl. 95. *Glareosa.* Norway.
96. *Hirsuta.* North America.
97. *Buxbaumii.* Ingria, Swed. Norw. Pennsylv.
98. *Vahlii.* Grassy hills of Lapland.
99. *Parviflora.* Mountains of Styria.
100. *Alba.* Austria, Hungary, Germany, Switz.
101. *Clandestina.* Engl. Germ. Austria, France.
102. *Pedata.* Lapland?
103. *Ornithopoda.* Germany, Italy, Gothland.
104. *Digitata.* England and other parts of Europe.
105. *Plantaginea.* Virginia and Carolina.
106. *Tristachya.* Japan. 107. *Bromoides.* Pennsyl.
108. *Varia.* Pennsylvania.
109. *Pilulifera.* England, Sweden, and Germany.
110. *Collina.* Germany, Austria, France, Sweden.
111. *Marginata.* Pennsylvania.
112. *Ciliata.* Germany and Sweden.
113. *Præcox.* England, Sweden, Germany, France.
114. *Emarginata.* Stony parts of Hungary.
115. *Tomentosa.* England, Sweden, Germany.
116. *Vestita.* N. Amer. 117. *Mucronata.* Switz.
118. *Schkuhrii.* At the Caspian.
119. *Supina.* Germany, Austria, and Tyrol.
120. *Sphærocarpa.* Caspian Sea.
121. *Globularis.* North of Sweden.
122. *Nigra.* Piedmont and Savoy.
123. *Tentaculata.* Pennsylv. 124. *Lupulina.* Do.
125. *Clavata.* Cape of Good Hope.
126. *Borbonica.* Bourbon.
127. *Extensa.* England and Sweden.
128. *Flava.* England and other parts of Europe.
129. *Japonica.* Japan.
130. *Fulva.* England, Denmark, Sweden, Germ.
131. *Distans.* England and other parts of Europe.
132. *Binervis.* England and Sweden.
133. *Rotundata.* Marshes of Lapland.
134. *Saxatilis.* Greenland, Norway, Lapland.
135. *Rigida.* Hills of Scotland.
136. *Pulla.* Lapland and Scotland.
137. *Ferruginea.* Austria and Salzburg.
138. *Frigida.* Carinthia, Salzburg, Switzerl. &c.
139. *Mielichhoferi.* Switzerland and Salzburg.
140. *Brachystachys.* Salzburg and Bavaria.
141. *Compressa.* Mountains of Croatia.
142. *Umbrosa.* Woods of Austria.
143. *Michelii.* England, Austria, Hung. Italy.
144. *Depauperata.* Engl. 145. *Anceps.* Pennsyl.
146. *Pilosa.* Germany, Italy, and Austria.
147. *Oligocarpa.* North America.
148. *Granularis.* Pennsylvania.
149. *Conoidea.* North America.
150. *Panicea.* England and other parts of Europe.
151. *Conglobata.* Sandy parts of Hungary.
152. *Pubescens.* Pennsylvania.
153. *Laxiflora.* Pennsylvania and Virginia.
154. *Folliculata.* Canada, Pennsylvania, Virginia.
155. *Rostrata.* Pennsyl. 156. *Hystericina.* Do.
157. *Chinensis.* China at Canton.
158. *Approximata.* Mount Cenis.
159. *Alpestris.* Austria and Switzerland.
160. *Nitida.* Hills of Austria.
161. *Verna.* Germany, Switzerland, Hungary.
162. *Livida.* Lapland.
163. *Cuspidata.* Norway.
164. *Firma.* Austria, Salzburg, Bavaria.
165. *Schraderi.* Germany.
166. *Cæspitosa.* Engl. and other parts of Europe.
167. *Stricta.* England, Sweden, Germany.
168. *Pendula.* England, Germany, France.
169. *Psilostachya.* Mountains of Croatia.
170. *Strigosa.* England and Germany.
171. *Miliacea.* Pennsylvania.
172. *Umbellata.* Pennsylvania.
173. *Capillaris.* Engl. Swed. Denm. France, &c.
174. *Pallescens.* Engl. and other parts of Europe.
175. *Lævis.* Mountains of Croatia.
176. *Scopoliana.* Mountains of Carniola.
177. *Ustulata.* Mts. of Lapland and Iceland.
178. *Limosa.* Engl. and other parts of Europe.
179. *Laxa.* Lapland at Torneo.
180. *Lævigata.* England and Portugal.
181. *Pseudo-Çyperus.* Engl. and V. Diem. Island.
182. *Drymeja.* Groves of Europe.
183. *Flexuosa.* Pennsyl. 184. *Refracta.* Mt. Cenis

Class XXI.
Monœcia.

185. *Digitalis.* Pennsylvania.
186. *Recurva.* England, Europe, and N. America.
187. *Melanostachya.* At the Caspian Sea.
188. *Nutans.* Austria. 189. *Acuminata.* Istria.
190. *Crinita.* Pennsylvania and Virginia.
191. *Maritima.* Norway. 192. *Salina.* Do.
193. *Trifida.* Falkland Isles.
194. *Trichocarpa.* Pennsyl. 195. *Pellita.* Do.
196. *Hispida.* Lakes of Barbary.
197. *Filiformis.* England, Sweden, Germany.
198. *Aquatilis.* Banks of rivers in Lapland.
199. *Acuta.* Europe, and North America.
200. *Paludosa.* England, Germany, Sweden, &c.
201. *Riparia.* England and other parts of Europe.
202. *Lacustris.* Pennsylvania.
203. *Ambleocarpa.* England and Italy.
204. *Vesicaria.* England and other parts of Eur.
205. *Plumbea.* Mount Caucasus.
206. *Ampullacea.* Engl. and other parts of Europe.
207. *Bullata.* North America.
208. *Secalina.* Hungary and Austria.
209. *Hordeiformis.* Marshy parts of France.
210. *Pumila.* Sandy parts of Japan.
211. *Hirta.* England and other parts of Europe.
* 212. *Tuberosa.* France. (Loisel. *Fl. Gall.*)
* 213. *Splendens.* France. (Loisel. *Fl. Gall.*)
* 214. *Trinervis.* France. (*Thuill.*)
* 215. *Inversa.* * 221. *Cataractæ.*
* 216. *Chlorantha.* * 222. *Striata.*
* 217. *Appressa.* * 223. *Lacistoma.*
* 218. *Gracilis.* * 224. *Cæspitosa.*
* 219. *Longifolia.* * 225. *Littorea.*
* 220. *Breviculmis.*

All perennial. Sp. 215—225, from New Holland and Van Diemen's Island. See Brown's *Prodromus*, p. 241.

1643. Scleria. Mas. *Cal.* gluma 2 seu 6-valv. multiflora. *Cor.* gl. muticæ.—Fem. *Cal.* gl. 2 seu 6-valv. 1-flora. *Cor.* 0. *Stig.* 1-3. *Nux* colorata subglobosa.

1. *Flagellum.* Jamaica and Guiana. *Peren.*
2. *Margaritifera.* Isle of Tanna and New Holland. *Peren.*
3. *Verrucosa.* Guinea. *Peren.*
4. *Mitis.* Jamaica and Surinam. *Peren.*
5. *Bracteata.* Panama. *Peren.*
6. *Latifolia.* Jamaica. *Peren.*
7. *Reticularis.* Carolina. *Peren.*
8. *Lævis.* East Indies. *Peren.*
9. *Sumatrensis.* Sumatra. *Peren.*
10. *Scabra.* Cumana. *Peren.*
11. *Tessellata.* East Indies. *Peren.*
12. *Lithosperma.* Malabar. *Peren.*
13. *Tenuis.* Ceylon. *Peren.*
14. *Poæformis.* East Indies. *Peren.*
15. *Filiformis.* West Indies and Guiana. *Per.*
16. *Verticillata.* Virginia and Carolina. *Per.*
17. *Interrupta.* Guiana. *Peren.*
18. *Hirtella.* Jamaica. *Peren.*
19. *Caroliniana.* Carolina. *Peren.*
20. *Ciliata.* Do. *Per.* 21. *Pauciflora.* Do. *Per.*
22. *Triglomerata.* Do. *Peren.*
23. *Capitata.* Cumana. *Peren.*
* 24. *Zeylanica.* Ceylon and Madagascar.
* 25. *Trialata.* Madagascar.
* 26. *Racemosa.* Madagascar.
* 27. *Setacea.* Porto Rico * 28. *Distans.* Do.
* 29. *Purpurea.* St Thomas.
* 30. *Distans.* * 33. *Rugosa.*
* 31. *Capillaris.* * 34. *Pygmæa.*
* 32. *Laxa.*

Sp. 24—29, see *Encyc. Bot.* vii. p. 6.
Sp. 30—34, from New Holland; see Brown's *Prodromus*, p. 240.

‡ 1635. Sparganium. Mas. *Ament.* subrotundum. *Cal.* 3-phyll. *Cor.* 0.—Fem. *Ament.* subrot. *Cal.* 3-phyll. *Cor.* 0. *Stig.* 2-fid. *Drupa* exsucca, 1-sperma.

1. *Ramosum.* Europe, Siberia, and Amer. *Per.*
2. *Simplex.* Europe and North America. *Per.*
3. *Natans.* North of Europe. *Peren.*
* 4. *Angustifolium.* N. Holl. (Brown's *Prodr.* 338.)

‡ 1634. Typha. Mas. *Ament.* cylindricum. *Cal.* obsoletus, 3-phyll. *Cor.* 0.—Fem. *Ament.* cylindr. infra masculos. *Cal.* 0. *Cor.* 0. *Sem.* 1 pedicellatum, pedicello basi pilis longis pappi instar cincto.

1. *Latifolia.* England, Europe, Asia, and America. *Peren.*
2. *Minor.* England and Switzerland. *Peren.*
3. *Angustifolia.* England and N. Holland. *Per.*
4. *Minima.* Near Salzburg. *Peren.*
* 5. *Domingensis.* Domingo. (*Persoon.*)

1644. Comptonia. Mas. *Ament.* *Cal.* squama. *Cor.* 2-pet. *Fil.* bifurca.—Fem. *Ament.* *Cal.* squama. *Cor.* 6-pet. *Styl.* 2. *Nux* ovata.

1. *Asplenifolia.* N. England and Carolina. *Shr.*

1647. Acharia. Mas. *Cal.* 2-phyll. *Cor.* 1-pet. 3-fid.—Fem. *Cal.* 2-phyll. *Cor.* 1-pet. 3-fid. *Caps.* 1-loc. 3-valv. 1-sperma.

1. *Tragodes.* Cape of Good Hope. *Peren.*

1645. Axyris. Mas. *Cal.* 3-part. *Cor.* 0.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Styl.* 2. *Sem.* 1.

1. *Amaranthoides.* Dauria. *Ann.*
2. *Hybrida.* Siberia. *Ann.*
3. *Prostrata.* Siberia. *Ann.*

1646. Tragia. Mas. *Cal.* 3-part. *Cor.* 0.—Fem. *Cal.* 5-part. *Cor.* 0. *Styl.* 3-fid. *Caps.* 3-cocca, 3-loc. *Sem.* solitaria.

1. *Volubilis.* West Indies.
2. *Cordata.* Arabia Felix. *Shrub.*
3. *Hispida.* East Indies. *Shrub.*
4. *Macrocarpa.* Kentucky. *Shrub.*
5. *Villosa.* Cape. 6. *Capensis.* Cape.
7. *Involucrata.* East Indies.
8. *Nepetæfolia.* New Spain. *Ann.*
9. *Urticæfolia.* Georgia and Virginia. *Ann.*
10. *Mercurialis.* East Indies.
11. *Corniculata.* Trinidad and Guiana.
12. *Urens.* Virginia and Carolina. *Ann.*
13. *Chamaclea.* East Indies. *Ann.*
14. *Cannabina.* Malabar.
* 15. *Pedunculata.* Oware and Benin. (*Beauvois.*)
* 16. *Marginata.* Isle of France. (*Enc. Bot.* p. 7.)
* 17. *Reticulata.* Bourbon. * 18. *Virgata.* (*Lam.*)

1648. Hernandia. Mas. *Cal.* 3-part. *Cor.* 3-pet. —Fem. *Cal.* truncatus, integerrimus. *Cor.* 6-pet. *Drupa* cava, ore aperta: nucleo mobili.

1. *Sonora.* East and West Indies. *Shrub.*
2. *Ovigera.* East Indies. *Shrub.*
3. *Gujanensis.* Woods of Guiana. *Shrub.*

Tetrandria.

1663. Diotis, or Ceratospermum. Mas. *Cal.* 4-phyll. *Cor.* 0.—Fem. *Cal.* 1-phyll. 2-cornis.

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1. *Procumbens*. Alleghany Mountains. *Peren.*

1654. Empleurum. Mas. *Cal.* 4-fid. *Cor.* 0.—Fem. *Cal.* 4-fid. inf. *Cor.* 0. *Stig.* cylindraceum, denticulo laterali germinis insidens. *Caps.* latere dehiscens. *Sem.* 1 arillatum.

1. *Serrulatum*. Cape of Good Hope. *Shrub.*

1656. Alnus. Mas. *Ament.* receptaculis cuneiformibus truncatis 3-floris compositum. *Cal.* squama. *Cor.* 4-part.—Fem. *Ament.* *Cal.* squamæ bifloræ. *Cor.* 0. *Sem.* compressa ovata nuda.

1. *Glutinosa*. Europe, Asia, America, and Africa. *Shrub.*
2. *Oblongata*. South of Europe. *Shrub.*
3. *Incana*. Lapland, Germ. America. *Shrub.*
4. *Undulata*. Canada. *Shrub.*
5. *Serrulata*. From Pennsylv. to Carolina. *Shr.*

1652. Najas. Mas. *Cal.* 2-lobus. *Cor.* 1-pet. 4-fid. *Anth.* sessiles cohærentes.—Fem. *Cal.* 0. *Cor.* 0, *Styl.* subulatus. *Stig.* 2-seu 3-fid. *Caps.* 1-seu 4-sperma.

1. *Monosperma*. Sweden, Germany, Switzerland, and Italy. *Ann.*
2. *Tetrasperma*. Italy. *Ann.*

1650. Serpicula. Mas. *Cal.* 4-dent. *Cor.* 4-pet.—Fem. *Cal.* 4-part. *Peric.* nux tomentosa.

1. *Repens*. Cape of Good Hope. *Peren.*
2. *Verticillata*. East Indies. *Peren.*
3. *Veronicæfolia*. Rocks in Bourbon.

1649. Aucuba. Mas. *Cal.* 4-dent. *Cor.* 4-pet. recept. foramine quadrato pertusum.—Fem. *Cal.* 4-dentat. *Cor.* 4-pet. *Germen* inferum. *Styl.* 1, brevis. *Nux* ovata 1-locul.

1. *Japonica*. Japan. *Shrub.*

‡ 1651. Littorella. Mas. *Cal.* 4-phyll. *Cor.* 4-fida. *Stam.* longa.—Fem. *Cal.* 0. *Cor.* obsolete 3-fida (sub 4-fida.) *Styl.* longus. *Nux* 1-sperma.

1. *Lacustris*. Engl. and other pts. of Eur. *Per.*

1653. Cicca. Mas. *Cal.* 4-phyll. *Cor.* 0.—Fem. *Cal.* 4-phyll. *Cor.* 0. *Styli* 4. *Caps.* 4-cocca non dehiscens subcarnosa.

1. *Disticha*. East Indies. *Shrub.*
2. *Nudiflora*. Java. *Shrub.*

1655. Argythamnia. Mas. *Cal.* 4-phyll. *Cor.* 4-pet.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Styl.* 3 dichotomi. *Caps.* tricocca.

1. *Candicans*. Jamaica. *Shrub.*

Pentandria.

1672. Crotonopsis. Mas. *Cal.* 5-part. *Cor.* 5-pet.—Fem. *Cal.* et *Cor.* maris. *Stig.* 3 duplicato-2-fida. *Caps.* 1-sperma non dehiscens.

1. *Linearis*. Carolina and the Illinois. *Ann.*
2. *Elliptica*. Carolina. *Ann.*

1674. Polychroa. Mas. *Cal.* campan. 5-fid. *Cor.* 0.—Fem. *Cal.* 5-part. *Cor.* 0. *Styl.* 0. *Caps.* 1-sperma.

1. *Repens*. China and Cochinchina. *Peren.*

1665. Nephelium. Mas. *Cal.* 5-dent. *Cor.* 0.—Fem. *Cal.* 4-fid. *Cor.* 0. *Germ.* 2. *Styli* 2 singulis. *Drupæ* siccæ, 2, muricatæ, 1-spermæ.

1. *Lappaceum*. East Indies. *Shrub.*

1671. Luffa. Mas. *Cal.* 5-part. *Cor.* 5-part. calyci adnata.—Fem. *Cal.* et *Cor.* maris. *Fil.* 5 absque antheris. *Germ.* inferum. *Stig.* 3-4 clavata. *Pepo.* 10-sulcatus siccus operculatus 3-loc. polysperma.

1. *Fœtida*. East Indies. *Ann.*

‡ 1667. Xanthium. Mas. *Cal.* comm. imbric. *Cor.* 1-pet. 5-fidæ, infundib. *Recept.* paleaceum.—Fem. *Cal.* involucr. 2 phyll. 1-florum. *Cor.* 0. *Drupa* sicca, muricata, 2-fid. *Nux* 2-loc.

1. *Strumarium*. Engl. and other pts. of Eur. *A*
2. *Orientale*. China, Japan, Ceylon, Siberia. *An.*
3. *Echinatum*. *Ann.*
4. *Spinosum*. Portug. Spain, France, Italy. *An.*

1668. Ambrosia. Mas. *Cal.* comm. 1-phyll. *Cor.* 1-pet. 5-fidæ, infundib. *Recept.* nudum.—Fem. *Cal.* 1-phyll. integer, ventre 5-dentato, 1-florus. *Cor.* 0. *Nux* e calyce indurato, 1-sperma.

1. *Integrifolia*. North America. *Ann.*
2. *Bidentata*. Illinois North America.
3. *Trifida*. Do. *Ann.* 4. *Elatior*. Do. *Ann.*
5. *Artemisifolia*. Virginia, Pennsylvania. *Ann.*
6. *Paniculata*. From Canada to Florida. *Ann.*
7. *Maritima*. Tuscany and Cappadocia.
8. *Peruviana*. Peru. *Peren.*
9. *Heterophylla*. North America. *Peren.*

1669. Franseria. Mas. *Cal.* communis 1-phyll. multident. *Cor.* 1-petalæ tubulosæ 5-dent. *Recept.* nudum.—Fem. *Cal.* polyphyll. *Cor.* 0. *Styli* 4. *Drupa* sicca. 4-loc. sitosa.

1. *Artemisioides*. Peru. *Shrub.*
2. *Ambrosioides*. Mexico. *Shrub.*

1670. Clibadium. Mas. *Cal.* comm. imbric. *Cor.* disci 5-fidæ.—Fem. *Cal.* communis idem. *Cor.* radii feminei 3 seu 4. *Drupa* umbilicata.

1. *Surinamense*. Surinam.

‡ 1673. Amaranthus. Mas. *Cal.* 3 seu 5-phyll. *Cor.* 0. *Stam.* 3 seu 5.—Fem. *Cal.* maris. *Cor.* 0. *Styli* 3. *Caps.* 1-loc. circumscissa. *Sem.* 1.

1. *Tenuifolius*. East Indies.
2. *Angustifolius*. Caspian Sea.
3. *Albus*. Pennsylvania.
4. *Græcizans*. Virginia.
5. *Campestris*. East Indies.
6. *Melancholicus*. East Indies.
7. *Tricolor*. East Indies and China.
8. *Bicolor*? China. 10. *Gangeticus*. Do.
9. *Polygamus*. E. Ind. 11. *Mangostanus*. Do.
12. *Polystachyus*. East Indies.
13. *Tristis*. China and East Indies.
14. *Inamœnus*. Japan? 15. *Lividus*. Virginia.
16. *Oleraceus*. East Indies.
17. *Blitum*. England and other parts of Europe.
18. *Prostratus*. France and Italy.
19. *Viridis*. Jamaica and Brazil.
20. *Scandens*. America. 21. *Deflexus*.
22. *Polygonoides*. Jamaica and Ceylon.
23. *Hybridus*. Virgin. 24. *Strictus*.
25. *Paniculatus*. North America.
26. *Sanguineus*. Bahama.
27. *Retroflexus*. Pennsylv. 28. *Lætus*.
29. *Flavus*. East Indies. 30. *Chlorostachys*.
31. *Hypochondriacus*. Virginia.
32. *Cruentus*. China.
33. *Caudatus*. Peru, Persia, Ceylon, Russia.
34. *Spinosus*. East and West Indies.
* 35. *Spicatus*. France. (*Lamarck.*)
* 36. *Undulatus*. (*Stam.* 3.) * 38. *Interruptus*. Do.
* 37. *Rhombeus*. (*Stam.* 3.) * 39. *Lineatus*. Do.

All annual. Sp. 36—39 from New Holland. Brown's *Prodromus*, p. 414.

1666. Schisandra. Mas. *Cal.* 9-phyll. in triplice fere serie positus. *Cor.* 0. *Anth.* subsessiles apice cohærentes.—Fem. *Cal.* maris. *Cor.* 0. *Pist.*

1688. BEGONIA. MAS. *Cal.* 0. *Cor.* 4-pet. *Petal.* 2 oppositis majoribus. *Stam.* numerosa.—FEM. *Cal.* 0. *Cor.* 6 seu 4-pet. ut masc. *Styli* 3, 2-fidi. *Caps.* infera 3-angularis, alata, 3-loc. polysperma.

1. *Nitida*. Jamaica. *Shrub.*
2. *Dichotoma*. Caraccas. *Shrub.*
3. *Reniformis*. Brasil. *Shrub.*
4. *Stipulacea*. *Shr.* 5. *Cucullata*. Brasil. *Shr.*
6. *Erminea*. Madagascar, Island of Marosse. *Sh.*
7. *Crenata*. E. Ind. Island of Salsette. *Peren.*
8. *Tenuifolia*. Princes Island near Java.
9. *Ferruginea*. New Granada. *Shrub.*
10. *Grandis*. Japan. *Shrub.*
11. *Macrophylla*. Mountains of Jamaica. *Shrub.*
12. *Tuberosa*. Island of Amboyna, &c. *Peren.*
13. *Rotundifolia*. West Indies. *Peren.*
14. *Isopteris*. Java. *Shrub.*
15. *Acutifolia*. Jamaica. *Shrub.*
16. *Acuminata*. Jamaica. *Shrub.*
17. *Humilis*. Trinidad. *Ann. Peren.*
18. *Hirsuta*. Guiana. *Ann.*
19. *Urticæ*. New Granada. *Ann.*
20. *Ulmifolia*. South America. *Shrub.*
21. *Scandens*. Jamaica and Guiana. *Shrub.*
22. *Nana*. Madagascar. *Peren.*
23. *Tenera*. Ceylon. *Ann.*
24. *Diptera*. Island of Johanna. *Peren.*
25. *Octopetala*. Mountains of Lima. *Peren.*

‡ 1687. SAGITTARIA. MAS. *Cal.* 3-phyll. *Cor.* 3-pet. *Fil.* fere 24.—FEM. *Cal.* 3 phyll. *Cor.* 3-pet. *Pist.* multa. *Sem.* multa, nuda.

1. *Sagittifolia*. Engl. and other pts. of Eur. *Per.*
2. *Latifolia*. From Canada to Carolina. *Peren.*
3. *Obtusa*. North America. *Peren.*
4. *Obtusifolia*. East Indies. *Peren.*
5. *Natans*. Carolina. *Peren.*
6. *Alpina*. Dauria. *Peren.*
7. *Lancifolia*. Jamaica and Carolina. *Peren.*
8. *Graminea*. Canada. *Peren.*
9. *Acutifolia*. Surinam. *Peren.*
10. *Trifolia*. China. *Peren.*

‡ 1686. MYRIOPHYLLUM. MAS. *Cal.* 4-fid. *Pet.* 4 caduca. *Stam.* 8.—FEM. *Cal.* et *Cor.* maris. *Pist.* 4. *Styl.* 0. *Caps.* 4, 1-spermæ.

1. *Spicatum*. England and North America.
2. *Verticillatum*. Engl. Eur. N. Amer. *Peren.*
3. *Indicum*. Ceylon and Coromandel. *Peren.*
4. *Heterophyllum*. Carolina and Georgia.
5. *Scabratum*. Carolina and Georgia. *Peren.*

‡ 1685. CERATOPHYLLUM. MAS. *Cal.* multipart. *Cor.* 0. *Stam.* 16-20 brevissima. *Anth.* 3-cuspidatæ.—FEM. *Cal.* 6 phyll. imbric. *Cor.* 0. *Pist.* 1. *Styl.* filiform. *Nux* 1-sperma.

1. *Demersum*. Engl. and other pts. of Eur. *Per.*
2. *Submersum*. Engl. Eur. and E. Indies. *Per.*

1690. THELYGONUM. MAS. *Cal.* 2-fid. *Cor.* 0. *Stam.* fere 12.—FEM. *Cal.* 2-fid. *Cor.* 0. *Pist.* 1. *Caps.* coriacea, 1-loc. 1-sperma.

1. *Cynocrambe*. East Indies and Italy. *Ann.*

‡ 1691. POTERIUM. MAS. *Cal.* 4-phyll. *Cor.* 4-part. *Stam.* 30-50.—FEM. *Cal.* 4-phyll. *Cor.* 4-part. *Pist.* 2. *Bac.* e tubo corollæ indurato.

1. *Sanguisorba*. England and S. of Eur. *Per.*
2. *Polygamum*. Dry pts. of Hungary. *Peren.*
3. *Hybridum*. Montpellier. *Peren.*
4. *Ancistroides*. North of Africa in the fissures of rocks. *Shrub.*
5. *Caudatum*. Canary Islands. *Shrub.*
6. *Spinosum*. Candia and Lebanon. *Shrub.*

1689. ACIDOTON. MAS. *Cal.* 5-phyll. *Cor.* 0. *Stam.* 35-40.—FEM. *Cal.* 6-phyll. *Cor.* 0. *Styl.* 3-fid. *Caps.* 3-cocca.

1. *Urens*. Mountains of Jamaica. *Shrub.*

1684. MABEA. MAS. *Cal.* 5-dent. *Cor.* 0. *Stam.* 9-12-calyci inserta.—FEM. *Cal.* 5-dent. *Cor.* 0. *Styl.* longus. *Stig.* 3. *Caps.* 3-cocca 3-loc. *Sem.* solitaria.

1. *Piriri*. Guiana and Cayenne. *Shrub.*
2. *Taquari*. Guiana and Cayenne. *Shrub.*

1707. PARIANA. MAS. *Cal.* 2-valv. *Cor.* 2-valv. *Stam.* 40.—FEM. *Cal.* 2-valv. *Cor.* 2-valv. *Styl.* pilosus. *Stig.* 2. *Sem.* 1, triquetrum.

1. *Campestris*. Cayenne and Guiana. *Peren.*

1708. GARCIA. MAS. *Cal.* 2-part. *Cor.* 10-11-pet. *Nect.* glandulæ 2 ad basin singuli filamenti.—FEM. *Cal.* 2-part. *Cor.* 7-9-pet. *Nect.* margo glandulosus ad basin germinis. *Caps.* tricocca.

1. *Nutans*. St Martha in America. *Shrub.*

1709. MANICARIA. *Spatha* universalis sacculiformis non dehiscens.—MAS. *Cal.* campan. lacerus. *Cor.* 3-pet. *Stam.* 24.—FEM. *Cal.* 3-phyll. *Cor.* 3-pet. *Drupa* exsucca?

1. *Saccifera*. East Indies. *Shrub.*

1710. CARYOTA. *Spatha* universalis composita.—MAS. *Cal.* 3-phyll. *Cor.* 3-pet.—FEM. *Cal.* 3-phyll. *Cor.* 3-part. *Styl.* 1. *Bacca* 1-loc. disperma.

1. *Urens*. East Indies. *Shrub.*
2. *Horrida*. Caraccas. *Shrub.*

‡ 1694. FAGUS. MAS. *Cal.* 5-fid. campan. *Cor.* 0. *Stam.* 12 circiter.—FEM. *Cal.* 4-dent. setosus. *Cor.* 0. *Germ.* 2. *Nuces* 2 calyce echinato coriaceo quadrifido inclusæ.

1. *Sylvatica*. Engl. and other pts. of Eur. *Shr.*
2. *Ferruginea*. North America. *Shrub.*
3. *Antarctica*. Terra del Fuego. *Shrub.*

‡ 1695. CASTANEA. MAS. *Ament.* nudum. *Cal.* 0. *Cor.* 5-pet. *Stam.* 10-20.—FEM. *Cal.* 5 seu 6-phyll. muricatus. *Cor.* 0. *Germ.* 3. *Stigm.* penicilliformia. *Nuces* 3 calyce echinato inclusæ.

1. *Vesca*. Engl. and other pts. of Eur. *Shrub.*
2. *Pumila*. From Maryland to Florida. *Shrub.*

‡ 1692. QUERCUS. MAS. *Cal.* 5-fid. fere. *Cor.* 0. *Stam.* 5-10.—FEM. *Cal.* 1-phyll. integerrimus, scaber. *Cor.* 0. *Styli* 2-5. *Nux* coriacea calyce persistente basi cincta.

1. *Phellos*. N. Amer. 4. *Myrtifolia*. Do.
2. *Maritima*. Do. 5. *Virens*. Do.
3. *Sericea*. Do. 6. *Cinerea*. Do.
7. *Microphylla*. Mts. in New Spain. *Shrub.*
8. *Salicifolia*. Mexico near Acapulco. *Shrub.*
9. *Glabra*. Japan. *Shrub.*
10. *Concentrica*. High mts. of Cochinchina. *Shr.*
11. *Molucca*. Isl. of Celebes and Formosa. *Shr.*
12. *Laurifolia*. S. Carolina and Georgia. *Shr.*
13. *Imbricaria*. Alleghany mts. N. Amer. *Shr.*
14. *Elliptica*. Mexico. *Shrub.*
15. *Acuta*. Japan. *Shrub.*
16. *Magnoliæfolia*. Mexico. *Shrub.*
17. *Lutea*. Mexico. *Shrub.*
18. *Glauca*. Japan. *Shr.* 19. *Cuspidata*. Do. *Shr.*
20. *Serrata*. Mountains of Japan. *Shrub.*
21. *Diversifolia*. New Spain between Chalma and Santa Rosa. *Shrub.*
22. *Agrifolia*. North America. *Shrub.*
23. *Gramuntia*. South of France? *Shrub.*
24. *Ballota*. Barbary. *Shrub.*

Class XXI. Monœcia.

campan. 4-fida. *Styl.* 1. *Stig.* capitatum 8-sulcatum. *Bacca* 8-loc. polysperma.

1. *Hypocistis.* Portugal, Spain, France. *Per.*

1732. Bradleja. Mas. *Cal.* 0. *Cor.* 6-pet. *Stam.* 3 connata.—Fem. *Cal.* 0. *Cor.* 6-part. *Styl.* 0. *Stig.* 6. *Caps.* 6-loc.

1. *Sinica.* China. *Shrub.*

2. *Philippensis.* Philippine Islands. *Shrub.*

3. *Glochidion.* Society Islands and New Hebrides. *Shrub.*

‡ 1711. Pinus. Mas. *Cal.* 4-phyll. *Cor.* 0. *Stam.* plurima. *Anth.* nudæ.—Fem. *Cal.* strobili: squama 2-flora. *Cor.* 0. *Pist.* 1. *Nux* ala membranacea excepta.

1. *Sylvestris.* Britain, N. of Eur. and Siberia.

2. *Mughus.* Mountains of Austria.

3. *Pumilio.* Mts. of Salzburg and Carniola, &c.

4. *Pinaster.* South of Europe.

5. *Inops.* North America.

6. *Resinosa.* North America. *Shrub.*

7. *Halepensis.* In the East, and in Barbary.

8. *Maritima.* S. of Eur. 9. *Massoniana.* China.

10. *Banksiana.* Hudson's Bay.

11. *Pinea.* Italy, Spain, and South of France.

12. *Viriabilis.* N. Amer. 13. *Rigida.* Do.

14. *Taeda.* Virginia and Carolina.

15. *Palustris.* Sea coast North Carolina, &c.

16. *Serotina.* Carolina and Pennsylvania.

17. *Longifolia.* Mountains East Indies.

18. *Combra.* Mts. of Siberia, Tartary, Switz. &c.

19. *Occidentalis.* Mountains of Hispaniola.

20. *Strobus.* Virginia and Canada.

21. *Cedrus.* Syria and Lebanon.

22. *Pendula.* North America.

23. *Microcarpa.* Hudson's Bay and Pennsylv.

24. *Larix.* Mountains of Switzerland, &c.

25. *Dammara.* Amboyna and China.

26. *Picea.* Mountains of Sweden, Switz. &c.

27. *Balsamea.* Virginia and Canada.

28. *Lanceolata.* China.

29. *Taxifolia.* North America.

30. *Canadensis.* Do. 31. *Nigra.* Do.

32. *Abies.* North of Europe and Asia.

33. *Rubra.* Hudson's Bay.

34. *Alba.* N. Amer. 35. *Orientalis.* The East.

* 36. *Laricio.* Corsica. (*Enc. Bot.* v. 339.)

* 37. *Uncinata.* Pyrenees. (*Fl. Fr.* iii. 726.)

All shrubby.

1713. Cupressus. Mas. *Ament.* imbric. *Cal.* squama. *Cor.* 0. *Anth.* 4, sessiles absque fil.—Fem. *Ament.* strobilaceum. *Cal.* squama 1-flora. *Cor.* 0. *Stig.* 2 puncta concava. *Nux* angulata.

1. *Sempervirens.* Candia, Italy, and Spain.

2. *Lusitanica.* Goa and Portugal.

3. *Disticha.* Virginia and Carolina.

4. *Pendula.* Japan. 6. *Japonica.* Japan.

5. *Thyoides.* Canada. 7. *Juniperoides.* Cape.

* 8. *Patula.* Japan. (Thunb. *Jap.*)

* 9. *Australis.* New Holland.

Sp. 1—7 shrubby.

1712. Thuja. Mas. *Ament.* imbric. *Cal.* squama. *Cor.* 0. *Anth.* 4.—Fem. *Ament.* strobilaceum. *Cal.* squama 2 flora. *Cor.* 0. *Nux* 1, cincta ala marginata.

1. *Occidentalis.* Canada and Siberia. *Shrub.*

2. *Orientalis.* China and Japan. *Shrub.*

3. *Articulata.* Hills of Barbary. *Shrub.*

4. *Dolabrata.* Japan. *Shrub.*

5. *Cupressoides.* Cape of Good Hope. *Shrub.*

* 6. *Quadrangularis.* Madagascar. (Duham. *Arb.*)

1736. Nipa. Mas. *Cal.* 0. *Cor.* 6-pet. *Fil.* unicum 12-fid.—Fem. *Cal.* 0. *Cor.* 0. *Styl.* 0. *Stig.* sulcus lateralis. *Drupa* angulata 1-sperma.

1. *Fruticans.* Java and E. Ind. Isles. *Shrub.*

1735. Areca. *Spatha* universalis 2-val. Mas. *Cal.* 3-part. *Cor.* 3-pet. *Stam.* 6 basi cohærentia.—Fem. *Cal.* 3-phyll. *Cor.* 3-pét. *Nect.* 6-dent. *Styl.* 3 brevissimi. *Drupa* 1-sperma.

1. *Catechu.* E. Ind. 2. *Lutescens.* Mauritius.

3. *Humilis.* Rocks of Amboyna.

4. *Spicata.* Moluccas. 5. *Glandiformis.* Do.

6. *Oleracea.* Caribbees.

7. *Globulifera.* Moluccas.

8. *Alba.* Mauritius and Bourbon.

9. *Rubra.* Do. 10. *Crinita.* Do.

All shrubby.

1734. Geonoma. *Spatha* universalis 2-valv. dup. Mas. *Cal.* 3-part. *Cor.* 3-pet. *Fil.* 6 in cylindrum connata.—Fem. *Cal.* et *Cor.* maris. *Styl.* 1 lateralis. *Stig.* 2-lob. *Drupa* sicca 1-sperma.

1. *Pinnatifrons.* Caraccas. *Shrub.*

2. *Simplicifrons.* Caraccas. *Shrub.*

1717. Acalypha. Mas. *Cal.* 3-seu 4-phyll. *Cor.* 0. *Stam.* 8-10.—Fem. *Cal.* 3-phyll. *Cor.* 0. *Styli* 3. *Caps.* 3-cocca, 3 loc. *Sem.* 1.

1. *Monostachya.* Mexico.

2. *Diversifolia.* Caraccas.

3. *Corensis.* West Indies. *Shrub.*

4. *Virginica.* From Canada to Virginia. *Shr.*

5. *Caroliniana.* From Virginia to Florida. *Ann.*

6. *Ciliata.* Guinea, Arabia Felix, E. Ind. *Ann.*

7. *Betulina.* East Indies and Arabia Felix. *An.*

8. *Phleoides.* New Spain. *Shrub.*

9. *Reptans.* Hispaniola and Jamaica. *Shrub.*

10. *Indica.* East Indies. *Ann.*

11. *Hispida.* East Indies? *Ann.*

12. *Cuspidata.* Caraccas. *Shrub.*

13. *Lanceolata.* East Indies.

14. *Corchorifolia.* Martinique. *Ann.*

15. *Pilosa.* Panama, New Spain, Philippines. *Shr.*

16. *Capitata.* East Indies. *Ann.*

17. *Alnifolia.* East Indies. *Shrub.*

18. *Alopecuroidea.* Island of Venezuela. *Shrub.*

19. *Glandulosa.* New Spain. *Ann.*

20. *Hernandifolia.* Interior of Jamaica. *Shrub.*

21. *Muppa.* The Moluccas. *Shrub.*

22. *Lævigata.* Jamaica. *Shrub.*

23. *Elliptica.* Do. *Shr.* 24. *Virgata.* Do. *Shr.*

25. *Vagans.* Acapulco. *Shrub.*

26. *Carthaginensis.* Carthagena. *Shrub.*

27. *Villosa.* Carthagena. *Shrub.*

28. *Hirsutissima.* Caraccas. *Shrub.*

29. *Macrostachya.* Do. *Shr.* 30. *Polystachya.* *Shr.*

31. *Tomentosa.* Hispaniola. *Ann.*

32. *Angustifolia.* Hispaniola. *Shrub.*

33. *Scabrosa.* Jam. 34. *Betulæfolia.* Do. *Shr.*

35. *Integrifolia.* Mauritius. *Shrub.*

36. *Australis.* South America. *Shrub.*

37. *Glabrata.* Cape of Good Hope. *Shrub.*

38. *Decumbens.* Ditto. 39. *Cordata.* Ditto.

1716. Dalechampia. *Involuc.* commune ext. foliolis 4, int. foliolis 2 trifidis. Mas. *Umbellula* 10-flora: involucello 2-phyllo: paleis numerosis. *Perianth.* proprium 5-phyll. *Cor.* 0. *Fil.* plurima, connata.—Fem. *Flosculi* 3: involucello 3-phyllo. *Perianth.* proprium foliolis 11. *Cor.* 0. *Styl.* fi-

2

liformis. *Caps.* 3-cocca.
1. *Convolvuloides.* Brasil. 2. *Tamnifolia.* E. Ind.
3. *Tiliæfolia.* Peru? 4. *Peruviana.* Peru.
5. *Colorata.* N. Granada. 6. *Scandens.* S. Amer.
7. *Parvifolia.* China. *Peren.*
8. *Brasiliensis.* Brasil. 9. *Ficifolia.* Brasil.
10. *Triphylla.* Ditto. 11. *Pentaphylla.* Ditto.

715. PLUKENETIA. Mas. *Cal.* 4-part. *Cor.* 0. *Stam.* 20. Fem. *Cal.* 4-part. *Cor.* 0. *Styl.* longissimus stigmate peltato 4-lobo. *Caps.* 4-cocca.
1. *Volubilis.* W. Ind. 2. *Verrucosa.* Surinam.
3. *Corniculata.* Amboyna.

727. PHYLLANTHUS. Mas. *Cal.* 6-part. *Cor.* 0. *Fil.* columnare. *Anth.* 3.—Fem. *Cal.* 6-part. *Cor.* 0. *Nect.* margo 12-angulatus. *Styli* 3. *Caps.* 3-cocca.
1. *Simplex.* Tranquebar. 2. *Anceps.* E. Ind.
3. *Obovatus.* Islands of the Susquehanna. *Per.*
4. *Andrachnoides.* E. Indies. *Ann.*
5. *Maderaspatensis.* East Indies. *Ann.*
6. *Longifolius.* Bourbon. *Shrub.*
7. *Virgatus.* Society Isles. *Shrub.*
8. *Verrucosus.* Cape. *Shr.* 9. *Incurvus.* Do.
10. *Phillyreæfolius.* Bourbon. *Shrub.*
11. *Lanceolatus.* Mauritius and Bourbon. *Shrub.*
12. *Stellatus.* Ceylon. *Shr.* 13. *Nutans.* Jam. *Shr.*
14. *Grandifolius.* Porto-Rico. *Shrub.*
15. *Virosus.* E. Ind. *Shr.* 16. *Villosus.* China. *Shr.*
17. *Rotundatus.* East Indies. *Shrub.*
18. *Conami.* Jamaica, Guiana, and Brasil. *Shr.*
19. *Lucens.* China. *Shrub.*
20. *Acuminatus.* Cayenne. *Shrub.*
21. *Rhamnoides.* Tranquebar, Ceylon, Java. *Shr.*
22. *Obscurus.* East Indies. *Shrub.*
23. *Multiflorus.* Do. *Shr.* 24. *Racemosus.* Do. *Shr.*
25. *Bacciformis.* Tranquebar. *Ann.*
26. *Debilis.* East Indies. *Ann.*
27. *Niruri.* East Indies and America. *Ann.*
28. *Urinaria.* E. Ind. *Ann.* 29. *Rotundifolia.* Do.
30. *Nummularifolius.* Madagascar, Cayenne. *Ann.*
31. *Quadrangularis.* East Indies. *Shrub.*
32. *Dumetosus.* Island of Rodrigo. *Shrub.*
33. *Mimosoides.* Caribbees. *Shrub.*
34. *Polyphyllus.* East Indies. *Shrub.*
35. *Kirganelia.* Bourbon. *Shrub.*
36. *Emblica.* East Indies. *Shrub.*

22. AGYNEJA. Mas. *Cal.* 5-phyll. *Cor.* 0. *Fil.* columnare. *Anth.* 3.—Fem. *Cal.* 6-phyll. *Cor.* 0. *Styli* 3 reflexi. *Caps.* 3-cocca 3-loc., loc. dispermis.
Impubes. China. *Ann.* 2. *Obliqua.* E. Ind. *Shr.*
Multilocularis. E. Ind. *Shr.* 4. *Pubera.* China. *Shr.*

24. EPISTYLIUM. Mas. *Cal.* 4-phyll. *Cor.* 0. *Nect.* glandulæ 4. *Fil.* columnare. *Anth.* 2.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Styl.* 0. *Stig.* 3-fid. *Caps.* 3-cocca.
Axillare. Jam. *Shr.* 2. *Cauliflorum.* Do. *Shr.*

28. STILLINGIA. Mas. *Cal.* hemisphæricus, multiflorus. *Cor.* tubulosa, erosa.—Fem. *Cal.* 1-florus, inferus. *Cor.* sup. *Styl.* 3-fid. *Caps.* 3-cocca.
1. *Sylvatica.* Carolina and Florida. *Peren.*
2. *Ligustrina.* Carolina and Georgia. *Shrub.*
3. *Sebifera.* Wet parts of China. *Shrub.*

718. CROTON. Mas. *Cal.* cylindr. 5-dent. *Cor.* 5-pet. *Stam.* 10–15.—Fem. *Cal.* polyphyll. *Cor.* 0. *Styli* 3, bifidi. *Caps.* 3 loc. *Sem.* 1.
1. *Variegatum.* Amboyna and E. Indies. *Shr.*
2. *Cascarilla.* West Indies. *Shrub.*
3. *Discolor.* Santa Cruz. *Shrub.*
4. *Maritimum.* Coasts of Carolina. *Shrub.*
5. *Benzoe.* East Indies. *Shrub.*
6. *Lanceolatum.* Chili. 7. *Dioicum.* Mex. *Shr.*
8. *Ovalifolium.* Santa Cruz and St Thomas's. *Shr.*
9. *Castaneifolium.* S. Amer. 10. *Morifolium.* Do.
11. *Palustre.* Vera Cruz. *Ann.*
12. *Argyranthemum.* Georgia and Florida. *Shr.*
13. *Alnifolium.* Peru. *Shrub.*
14. *Inophyllum.* New Caledonia. *Shrub.*
15. *Citrifolium.* St Domingo. *Shrub.*
16. *Glabellum.* Jamaica. *Shrub.*
17. *Microphyllum.* Peru. *Peren.*
18. *Betulinum.* St Thomas's and St Domingo. *Shr.*
19. *Dichotomum.* St Domingo. *Shrub.*
20. *Tinctorium.* France, Spain, Italy, Barbary.
21. *Plicatum.* Arabia Felix and E. Indies. *Ann.*
22. *Obliquum.* Egypt. *Ann.*
23. *Verbascifolium.* Greece and in the East. *Ann.*
24. *Triquetrum.* Brasil near Rio Janeiro. *Ann.*
25. *Subluteum.* Guiana and Cayenne.
26. *Glandulosum.* Jam. Florida, Carolina. *Shr.*
27. *Hirtum.* Guiana and Caraccas. *Ann.*
28. *Divaricatum.* West Indies. *Ann.*
29. *Paniculatum.* Java. *Shrub.*
30. *Capitatum.* Country of the Illinois.
31. *Argenteum.* South America. *Ann.*
32. *Mucronatum.* Warm parts of America. *Shr.*
33. *Bracteatum.* Madagascar. *Shrub.*
34. *Nutans.* Soc. and Friendly Isl. N. Hebr. *Shr.*
35. *Populifolium.* Jamaica, Granada. *Shrub.*
36. *Tiglium.* E. Ind. *Shr.* 37. *Laurinum.* Jam. *Shr.*
38. *Coccineum.* Ceylon. *Shrub.*
39. *Lævigatum.* Haina. *Shrub.*
40. *Acutum.* Japan. *Ann.*
41. *Reticulatum.* E. Ind. *Shr.* 42. *Umbellatum.* Do.
43. *Eluteria.* Jamaica. *Shr.* 44. *Lucidum.* Do.
45. *Punctatum.* Ceylon. 46. *Montanum.* Ind. *Shr.*
47. *Nitens.* Jamaica. *Shrub.*
48. *Sericeum.* Guiana and Cayenne. *Shrub.*
49. *Utricifolium.* Brasil.
50. *Balsamiferum.* Martinique, Curaçoa, Jam. *Shr.*
51. *Micans.* Jamaica. *Shrub.*
52. *Pungens.* Caraccas. *Shrub.*
53. *Penicillatum.* Cuba. *Shrub.*
54. *Macrophyllum.* Jamaica. *Shrub.*
55. *Aromaticum.* Ceylon. *Shrub.*
56. *Scabrum.* Caraccas. *Shr.* 57. *Humile.* Jam. *Shr.*
58. *Ricinocarpos.* Surinam. *Ann.*
59. *Moluccanum.* Ceylon, Moluccas. *Shrub.*
60. *Lanatum.* Monte Video. *Shrub.*
61. *Farinosum.* Madagascar. *Shrub.*
62. *Compressum.* Brasil.
63. *Flavens.* St Thomas's and Jamaica. *Shrub.*
64. *Richardi.* Martinique. *Shrub.*
65. *Leprosum.* St Domingo. *Shrub.*
66. *Astroites.* West Indies. *Shrub.*
67. *Senegalense.* Senegal. *Shrub.*
68. *Capense.* Cape. *Shr.* 69. *Japonicum.* Japan.
70. *Rhombifolium.* Ceylon. *Ann.*
71. *Lobatum.* Vera Cruz. *Shrub.*
72. *Trilobatum.* Guinea. *Ann.*
73. *Gossypifolium.* Trinidad. *Shrub.*
74. *Spinosum.* East Indies. *Shrub.*
* 75. *Viscosum.* V. Leuwen's Land. } *Labill.* ii.
* 76. *Quadripartitum.* V. Diem. Isl. } p. 72.

Class XXI. Monœcia.

744. **Sechium.** Mas. *Cal.* 5-fid. *Cor.* 5-fida. *Nectarium* foveæ 10. *Fil.* 5 connata.—Fem. *Cal.* 5-fid. *Cor.* 5-fida. *Nect.* foveæ 10. *Styl.* 5-fid. *Pepo* 1-spermus muricatus.

1. *Edule.* West Indies. *Ann.*

743. **Sicyos.** Mas. *Cal.* 5-dent. *Cor.* 5-part. *Fil.* 3.—Fem. *Cal.* 5-dent. *Cor.* 5-part. *Styl.* 3-fid. *Pepo* 1-spermus.

1. *Angulata.* Canada, Pennsylvania. *Ann.*
2. *Parviflora.* Mexico. *Ann.*
3. *Vitifolia.* *Ann.*
4. *Laciniata.* Amer. *Ann.*

742. **Bryonia.** Mas. *Cal.* 5 dent. *Cor.* 5-part. *Fil.* 3.—Fem. *Cal.* 5-dent. *Cor.* 5-part. *Styl.* 3-fidus. *Bac.* subglobosa, polysperma.

1. *Rostrata.* Tranquebar. *Ann.*
2. *Scabra.* Cape. *Per.*
3. *Verrucosa.* Canaries. *P.*
4. *Punctata.* Cape. *Per.*
5. *Angulata.* Cape. *Per.*
6. *Acutangula.* Cape. *Per.*
7. *Grandis.* E. Ind. *Per.*
8. *Cochinchinensis.* Cochinchina. *Per.*
9. *Abyssinica.* Africa.
10. *Japonica.* Japan. *Per.*
11. *Umbellata.* E. Ind. *Per.*
12. *Epigaea.* E. Ind. *Per.*
13. *Scabrella.* Do. *Per.*
14. *Latebrosa.* Canar. *An.*
15. *Triloba.* Cape. *Per.*
16. *Stipulacea.* Cochinch.
17. *Americana.* Antilles. *P.*
18. *Cordifolia.* Ceylon. *P.*
19. *Alba.* Europe.
20. *Dioica.* Europe. *Per.*
21. *Cretica.* Candia. *Per.*
22. *Quinqueloba.* Cape. *Per.*
23. *Ficifolia.* Buenos Ayres. *Per.*
24. *Acuta.* Tunis. *Per.*
25. *Racemosa.* W. Ind. *Per.*
26. *Lævis.* Cape. *Per.*
27. *Palmata.* Ceylon. *Per.*
28. *Garcini.* Ceylon. *Per.*
29. *Alceæfolia.* E. Ind. *Per.*
30. *Laciniosa.* Ceylon. *Per.*
31. *Africana.* Cape. *Per.*
32. *Dissecta.* Cape. *Per.*
33. *Digitata.* Cape. *Per.*

Given under Monœcia Pentandria by Dr Smith.

Gynandria.

1745. **Andrahne.** Mas. *Cal.* 5-phyll. *Cor.* 5-pet. *Stam.* 5, styli rudimento inserta.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Styl.* 3. *Caps.* 3-loc. *Sem.* 2.

1. *Telephioides.* Italy, Greece, Media. *Ann.*
2. *Fruticosa.* East Indies. *Shrub.*

1746. **Hyphydra.** Mas. *Cal.* 5-part. *Cor.* 0. *Stam.* 6.—Fem. *Cal.* 0. *Cor.* 0. *Styl.* 1. *Stig.* 3. *Caps.* 3-valv. 1-sperma.

1. *Amplexicaulis.* Guiana and Cayenne. *Peren.*

NEW GENERA.

New Genera.

Monandria.

I. **Lilæa.** Mas. *Spica* longe pedunculata, axillaris, solitaria, oblonga, squamis undique imbric. lineari-subulatis, unifloris. *Fil.* 1, squama brevius. *Anth.* 2-loc. erecta.—Fem. *Spica* longe pedunculata, axillaris, solitaria ovata; squamis 0. *Pist.* nuda. *Ovar.* ovatum, imbric. *Styl.* brevissimus. *Stig.* capitatum. *Pericarp.* oblongum, striatum, coriaceum, 1-loc. 1-sperm. *Sem.* lineari-oblongum sursum attenuatum, tenuissima membrana vestitum. Flores [illegible] ad radicem, sessiles, solitarii. *Ovar.* ovato-oblongum, solitarium, ad apicem 2 seu 4-dent. in principio axillare, foliis elapsis extra-axillare. *Styl.* 1, teres, longissimus: *Stigma* capitatum. *Pericarp.* oblongum, striatum, coriaceum, apice 2 seu 4-dent. 1-loc. 1-sperm. *Sem.* lineari-oblongum, sursum attenuatum, tenuissima membrana vestitum. *Embryo* in utrisque seminibus monocotyledoneus, ovatus, apice acutus, albumine multoties brevior, et ad basin ejus locatus, candidus. (Humboldt, *Pl. Equin.* p. 221.)

1. *Subulata.* Marshy parts of the kingdom of Bogota near Cypaquira. *Ann.*

Triandria.

II. **Heteropogon.** *Spica* simp. monoica: flor. hinc masculi, inde fœminei.—Mas. *Cal.* 2-valv. *Cor.* 2-valvis, mutica: valvula int. setacea. *Nect.* 2-lob. [illegible]gidum.—Fem. *Cal.* 2-valv. *Cor.* 2-valv. altera [illegible]uscula aristata. *Aristæ* longissimæ, hirsutæ. This genus contains Sp. 5, 6 of Andropogon.

III. **Torresia.** *Cal.* commun. *Gluma* 2-valv. 3-flor. flor. intermedio femineo, valvul. muticis, inæqualibus.—Mas. *Cal.* proprius 0. *Cor.* gluma 2-valvul. exteriore aristata.—Fem. *Cor.* glum. 2-[illegible] mutica. *Sem.* oblongum.

1. *Utriculata.* Peru. (*Fl. Per. Syst.* 251.)

IV. **Uncinia.** *Flores* diclines, spicati: *Squamis* [illegible]que imbric. 1-floris.—Mas. *Perianth.* 0. *Stam.* 3.—Fem. (inferiores in eâdem spica.) *Perianth.* 1-phyll., capsulare ore coarctato, subindiviso, persistens. *Arista* hypogyna, exserta, hamata. *Nux* perianth. aucto inclusa. (Persoon, and R. Brown, *Prodr.* 241.)

1. *Compacta.* Van Diemen's Island.
2. *Riparia.* Ditto.
3. *Tenella.* Ditto.

This genus contains also Sp. 4, 5, 6 of Carex.

V. **Diplacrum.** Mas. laterales squamis scariosis.—Fem. intermedius. *Perianth.* 2-valv. nervosum, æquale, persistens. *Stylus* 1. *Stig.* 3. *Nux* spherica basi esquamata, perianthio conniventi tecta. (R. Brown, *Prodromus*, p. 210.)

1. *Caricinum.* New Holland.

Tetrandria.

VI. **Tricarium.** Mas. *Cal.* 4-phyll. *Cor.* 0. *Nect.* glandulis 4.—Fem. *Cal.* 4-part. *Cor.* 0. *Stig.* laciniatum. *Drupa* 3-cocca.

1. *Cochinchinense.* Cochinchina. (*Lour.*)

Hexandria.

VII. **Nephroia.** Mas. *Cal.* 5-phyll. *Cor.* 3-pet.—Fem. *Cal.* et *Cor.* maris. *Styl.* subnullus. *Stig.* 6, oblonga. *Drupa* 6, (minutæ), carnosæ, subreniformes, 1-loc. *Nuculæ* reniformes.

1. *Sarmentosa.* Cochinchina. (*Lour.*)

VIII. **Leptaspis.** Mas. *Gluma* 1-flora, 2-valv. *Perianth.* majus, 2-valve, membranaceum, valvula *exteriore* ovata, concava; *interiore* angustiore, lineari, plana. *Squamatæ* hypogynæ 0. *Stam.* 6.—Fem. *Gluma* ut in mare. *Perianth.* valvula *ext.* ventricosa, subglobosa, apertura apicis angustata; *int.* minuta, lineari. *Squam.* 0, hypogynæ. *Stylus* 1. *Stig.* 3, villosa. *Sem.* valv. *ext.* perianthii aucta, chartacea, inflata, inclusum. (R. Brown, *Prodr.* p. 211.)

1. *Banksii.* New Holland.
2. *Moluccana.* Moluccas.

Polyandria. Stamina above 7.

IX. Thalassia. Mas. *Spatha* 1-flora, 1-phylla, 2-fida, lacin. oblongis obtusis. *Cal.* 3-phyll. foliol. oblongis. *Cor.* 0. *Filam.* 0. *Anth.* 9, lineari-lanceolatæ.—Fem. . . . (*Ann. of Bot.* No. iv. p. 96.)

1. *Vitrariorum.* West Indies in the sea.

X. Amirola. Mas. *Cal.* 5-fid.: lacinia inferiore ad basin usque fissus. *Cor.* 0. *Stam.* 8, declinata.—Fem. ut in mare. *Styl.* incurvus. *Caps.* 3-cocca, inflata, 3-valv. *Sem.* globosa.

1. *Nitida.* Peru. (*Fl. Per. Syst.* p. 252.)

XI. Triphaca. Mas. *Cal.* 0. *Cor.* 5-fida, ovata. *Stam.* 15.—Fem. ut in mare. *Styl.* 1. *Legum.* 3.

1. *Africana.* Africa. (*Loureiro.*)

XII. Tridesmis. Mas. *Cal.* 5-phyll. *Cor.* 5-pet. *Stam.* circiter 20.—Fem. *Cal.* maris. *Cor.* 0. *Styli* in 3 fasciculos collecti. *Caps.* 3-locul. 1-sperma.

1. *Hispida.* At Canton. } *Loureiro,* ii.
2. *Tomentosa.* At Canton. } p. 706.

XIII. Ambora. Mas. *Involucr.* dein 4-part. patens. *Anth.* numerosis vestitum.—Fem. involucr. ovatum. *Germ.* numerosa. *Caps.* totidem in involucr.: ampliato, 1-spermæ, arillatæ. (*Juss.*)

1. *Tambourissa.* Madagascar. (Lam. *Ill.*)

XIV. Ipo. *Recept.* orbiculatum, cui. *Drupæ* ovatæ immersæ.

1. *Toxicaria.* East Indies. *Shrub.*

XV. Luziola. Mas. in distincta spica elatiore. *Gluma* laxa, 2-valv., mutica. *Stam.* 8–10.—Fem. Gluma 2-valvis, connivens mutica. *Styli* 2. *Sem.* ovatum, nitens.

1. *Peruviana.* In wet places. (Juss. *Gen. Pl.*)

XV. Diaphorea. Mas. *Cal.* gluma 1-flora, 3-valv.: tertia aristata. *Cor.* 2-valv. mutica. *Stam.* 10.—Fem. ut in mare. *Stig.* 3. *Sem.* 1, 3-quetrum.

1. *Cochinchinensis.* Cochinchina. (*Lour.*)

XVII. Iriartea. Palma. *Spatha* composita. Mas. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 15.—Fem. ut in mare. *Stig.* punct. minimum. *Drupa* 1-sperma. *Nux* striata.

1. *Deltoidea.* Pozuzo. (*Fl. Per. Syst.* 298.)

XVIII. Ludovia. Palma? *Spatha* communis 4-phylla. *Spad.* cylindricus. Mas. *Cal.* communis, seu recept. cubicum, 4-florum; *proprius* multidentatus. *Stam.* plurima.—Fem. *Cal.* marginalis. *Styl.* 4, longissimi. *Stig.* antheræformia. *Bacca* cubica polysperma.

1. *Palmata.* 2. *Latifolia.* 3. *Angustifolia.*
4. *Trigona.* 5. *Acuminata.*

From Peru. *Fl. Per. Syst.* 291.

Monadelphia.

XIX. Altingia. Mas. *Ament.* turbinatum. *Stam.* 60—100. *Filam.* brevia, apice dilatata.—Fem. *Ament.* rotundum, squama 2-flora. *Stig.* capitatum. *Conus* durus. *Drupa* compressa, cartilaginea. *Nucul.* 2-partibiles.

1. *Excelsa.* At Chiapanna. (*Ann. of Bot.* p. 325.)

XX. Podocarpus. Mas. *Cal.* foliola gemmæ imbricata. *Anth.* plures, adnatæ, 2-loc. rostratæ, filam. columnæ elongatæ affixis.—Fem. *Nux* ovata, 1-loc. recept. firmo semiimmersa.

1. *Aspleniifolius.* Van Diemen's Isl. (*Labill.*)
2. *Elongatus.* (*Taxus elong.* of Willd.)

XXI. Vernicia. Mas. *Cal.* 2-fid. *Cor.* 5-pet. *Stam.* 10.—Fem. *Stig.* obtusum 3-fid. *Drupa* varicosa, nuce 3-gona 3-loculari.

1. *Montana.* China and Cochinchina. *Shr.* (*Lour.*)

XXII. Atherosperma. Mas. involucr. diphyll. caducum. *Cal.* campan. 8-fid. *Cor.* 0. *Stam.* plura, basi subcoalita.—Fem. ut in mare. *Germ.* numerosa. *Caps.* stylo plumoso aristatæ, receptaculo cupulæformi impositæ.

1. *Moschata.* Van Diemen's Island. (*Labill.*)

Gynandria.

XXIII. Spermaxyrum. Mas. *Cal.* 1-phyll. *Cor.* 5-pet. *Stam.* 9, stipiti centrali affixa, quorum 6 filiformia sterilia.—Fem. ut in mare. *Stig.* 3-fid. *Caps.* 1-loc.? 2-valv. 1-sperma. (*Labillard.*)

1. *Phyllanthi.* Van Leuwen's Land.

REMARKS ON THE CLASS MONŒCIA.

The following plants might be expected to occur in this class; but, though apparently monœcious, they are arranged under other classes.

Monandria.

Callitriche.

Triandria.

Several species of Amaranthus. Empetrum *nigrum.* Ficus.

Pentandria.

Diosma. Some species of Guettarda. Celtis *aculeata.* Atriplex.

Hexandria.

Rumex *spinosus, alpinus.* Some species of Martinezia. Celtis. Planera. Veratrum. Melanthium.

Polyandria.

Quassia *simaruba.* Mercurialis *ambigua.* Dodonæa *viscosa.* Acer. Some species of Mimosa and Atriplex. Exoecaria *lucida, glandulosa.*

Monadelphia.

Melothria. Some species of Excoecaria.

CLASS XXII. DIŒCIA.

Monandria.

1755. **Phucagrostis.** Mas. *Cal.* 0. *Cor.* 0. *Fil.* filiforme. *Anth.* 4-loc. 4-cuspidata.—Fem. *Cal.* 0. *Cor.* 0. *Germ.* 2 compressa. *Styl.* fil. *Stig.* 2-fidum. *Sem.* 2.

1. *Major.* In the Mediterranean. *Peren.*

1747. **Pandanus.** Mas. *Cal.* 0. *Cor.* 0. *Stam.* 1. *Fil.* subulatum. *Anth.* cuspidatæ.—Fem. *Cal.* 0. *Cor.* 0. *Styl.* 2-fidus. *Drupa* composita.

1. *Odoratissimus.* India and Arabia. *Shrub.*
2. *Humilis.* Mauritius and the Moluccas. *Shrub.*
3. *Fascicularis.* East Indies. *Shrub.*
4. *Lævis.* Cochinchina. *Shrub.*
* 5. *Candelabrum.* Warm pts. of Africa. (*Beauv.*)
* 6. *Pedunculatus.* New Holland. } R. Brown,
* 7. *Spiralis.* New Holland. } *Prodr.* 341.

1749. **Monimia.** Mas. *Recept.* planum 4-part. staminibus interne obsitum. *Cal.* 0. *Cor.* 0.—Fem. *Involucr.* ovatum apice pervium. *Cal.* 0. *Cor.* 0. *Pist.* 5. *Drupæ* 2—5 involucro carnoso cinctæ.

1. *Rotundifolia.* Bourbon. *Shrub.*
2. *Ovalifolia.* Mauritius. *Shrub.*

1748. **Ascarina.** Mas. *Amentum* filiforme. *Squama* brevissima. *Cor.* 0. *Stam.* 1.—Fem. *Ament.* filiforme. *Squama* brevissima. *Cor.* 0. *Styl.* 0. *Stig.* 3-lob. *Drupa?* 1-sperma.

1. *Polystachya.* Society Isles. *Shrub.*

1750. **Didymeles.** Mas. *Flores* bini basi juncti. *Cal.* squama. *Cor.* 0. *Anth.* sessilis.—Fem. *Flores* bini basi juncti. *Cal.* squama. *Cor.* 0. *Styl.* 0. *Stig.* 2-lob. *Drupa* 1-sperma.

1. *Madagascarensis.* Madagascar. *Shrub.*

1751. **Dahlia, or Trichocladus.** Mas. *Cal.* squama. *Pet.* 1 lanceolatum convolutum.—Fem. *Cal.* squama. *Cor.* 0. *Styl.* 1. *Caps.* 1-loc. 4-valv. 1-sperma.

1. *Crinita.* Cape of Good Hope. *Shrub.*

1752. **Phelypæa, or Hypolepis.** Mas. *Cal.* 0. *Cor.* 1-pet. 6-part. *Recept.* barbatum.—Fem. *Cal.* 0. *Cor.* 1-pet. 6-part. infera. *Caps.* 7-loc. 7-valv. polysperma.

1. *Sanguinea.* Cape of Good Hope. *Shrub.*

Diandria.

1758. **Ceratiola.** Mas. *Cal.* 0. *Cor.* 0. *Stam.* 2.—Fem. *Cal.* 0. *Cor.* 0. *Stig.* multipartitum. *Drupa* 2-sperma.

1. *Ericoides.* North America. *Shrub.*

1754. **Vallisneria.** Mas. *Spatha* 2-part. *Spadix* tectus flosculis. *Cor.* 3-part.—Fem. *Spatha* 2-fida. 1-flora. *Cal.* 3-part. superus. *Cor.* 3-pet. *Caps.* 1-loc. polysperma.

1. *Spiralis.* Fra. Italy, and N. S. Wales. *Shr.*
2. *Americana.* At the Mississippi.
3. *Octandra.* India in stagnant waters. *Ann.*
* 4. *Physkium.* Cochinchina. (*Loureiro.*)
* 5. *Nana.* N. Holl. (Brown, *Prodr.* p. 344.)

1755. **Cecropia.** Mas. *Spatha* caduca. *Amenta* cylindracea. *Cal.* squamæ turbinatæ sub4-gonæ *Cor.* 0.—Fem. ut in mare. *Germina* imbric. *Styl.* 1. *Stig.* lacerum. *Bac.* 1-sperma.

1. *Peltata.* Jamaica and Surinam. *Shrub.*
2. *Palmata.* Brazil. *Shr.* 3. *Concolor.* Do. *Shr.*

‡ 1756. **Salix.** Mas. *Ament.* cylindraceum. *Cal.* squama. *Cor.* 0. *Gland.* baseos nectarifera.—Fem. *Ament.* cylindraceum. *Cal.* squama. *Cor.* 0. *Styl.* 2-fid. *Caps.* 1-loc. 2-valv. *Sem.* papposa.

1. *Hermaphroditica.* At Upsal.
2. *Hoppeana.* Near Salzburg.
3. *Triandra.* Engl. Switz. Germ. and Siberia.
4. *Undulata.* Germ. 5. *Villarsiana.* S. of Fra.
6. *Amygdalina.* England and Sweden.
7. *Russelliana.* Engl. 8. *Humboldtiana.* Peru.
9. *Tetrasperma.* East Indies.
10. *Nigra.* Pennsylv. Carolina, and Georgia.
11. *Pentandra.* England and other parts of Eur.
12. *Nigricans.* England and Lapland.
13. *Phylicifolia.* Scotl. Lapl. France, Sweden.
14. *Wulfeniana.* Alps of Carinthia.
15. *Silesiaca.* Mountains of Silesia.
16. *Pontederana.* Mount Cenis, Dauphiny.
17. *Laurina* or *bicolor.* Woods of England.
18. *Tenuifolia.* England and Lapland.
19. *Amaniana.* Mts. of Salzburg and Carinthia.
20. *Hastata.* Lapland. 25. *Cordata.* Do.
21. *Serrulata.* Do. 26. *Rigida.* Do.
22. *Discolor.* Pennsylv. 27. *Lucida.* Do.
23. *Petiolaris.* Engl. 28. *Acutifolia.* Caspian
24. *Myricoides.* Penn. 29. *Japonica.* Japan.
30. *Vitellina.* Engl. Germ. Switz. and France.
31. *Fragilis.* England, Germany, and Sweden.
32. *Præcox.* Germ. Italy, Switz. and France.
33. *Longifolia.* At the Susquehannah.
34. *Babylonica.* The East and Barbary.
35. *Subserrata.* Egypt.
36. *Purpurea.* England, Sweden, and Germany.
37. *Helix.* Engl. Germany, France, and Switz.
38. *Lambertiana.* Engl. 39. *Forbyana.* Engl.
40. *Rubra.* England and Germany.
41. *Croweana.* Engl. 45. *Rhamnifolia.* Sib.
42. *Divaricata.* Dauria. 46. *Starkeana.* Silesia.
43. *Radicans.* Engl. 47. *Prunifolia.* Scotl.
44. *Malifolia.* Engl. 48. *Weigeliana.* Silesia.
49. *Myrsinites.* Scotl. Lapl. Switz. Italy, France.
50. *Waldsteiniana.* Croatia.
51. *Formosa.* Switzerland and Carinthia.
52. *Carinata.* Scotl. 53. *Coruscans.* Austria.
54. *Arbuscula.* Scotland, Lapland, Switzerland.
55. *Herbacea.* England and other parts of Europe.
56. *Arbutifolia.* Switzerland and Savoy.
57. *Berberifolia.* Mountains of Dauria.
58. *Kitaibeliana.* Carpathian Mountains.
59. *Retusa.* Switzerland, France, Italy, Austria.
60. *Serpillifolia.* Do. 62. *Mucronata.* Cape.
61. *Foliolosa.* Lapland. 63. *Reticulata.* Engl.
64. *Myrtilloides.* Lapland and Dauphiny.
65. *Integra.* Japan.
66. *Ægyptiaca.* Egypt, Persia, Syria, Astrakan.
67. *Glauca.* Mts. of Lapl. 68. *Canescens.*
69. *Salviæfolia.* Portugal.
70. *Sericea.* Switzerland and France.
71. *Lanata.* Mts. of Lapl. 72. *Lapponum.* Do.
73. *Arenaria.* Scotl. Lapland, Switz. France.
74. *Appendiculata.* Finmark.

75. *Cinerea*. England, Sweden, Lapland, France.
76. *Bicolor*. Germ. 77. *Jacquiniana*. Austria.
78. *Mühlenbergiana*. Pennsylvania and Canada.
79. *Tristis*. Pennsylvania.
80. *Argentea*. England and Germany.
81. *Repens*. England, Germany, Sweden, France.
82. *Fusca*. England, Germany, and Sweden.
83. *Schraderiana*. Germany.
84. *Prostrata*. England and Silesia.
85. *Hirsuta*. Cape. 86. *Pyrenaica*. Pyrenees.
87. *Hirta*. England.
88. *Dicksoniana*, or *myrtilloides* of Smith. Scotl.
89. *Incubacea*. Germany, Sweden, and Carniola.
90. *Rosmarinifolia*. England, Sweden, Germany.
91. *Riparia*. Austria, Hungary, and France.
92. *Angustifolia*. At the Caspian.
93. *Grisea*. Pennsylv. 95. *Spathulata*. Germ.
94. *Ambigua*. Germ. 96. *Aurita*. Engl. &c.
97. *Aquatica*. England and Germany.
98. *Oleifolia*. England. 99. *Cotinifolia*. Do.
100. *Sphacelata*. Scotland and Carinthia.
101. *Caprea*. England, &c.
102. *Chrysanthos*. Norway.
103. *Fagifolia*. Croatia.
104. *Acuminata*. England and Germany.
105. *Conifera*. New England and Carolina.
106. *Obtusifolia*. Lapland.
107. *Cinerascens*. Portugal.
108. *Pedicellata*. Tunis. 109. *Viminalis*. Eur.
110. *Mollissima*. Germ. 111. *Stipularis*. Engl.
112. *Holosericea*. Germ. 113. *Candida*.
114. *Fluggeana*. South of France.
115. *Gmeliniana*. Siberia. 116. *Alba*. Europe.
All shrubby.

1757. **Borya.** Mas. *Cal.* 4-phyll. *Cor.* 0. *Stam.* 2, 3.—Fem. *Cal.* 4-phyll. inæqual. *Cor.* 0. *Stig.* capitatum. *Bac.* 1-sperma.
1. *Cassinoides*. Antilles. *Shrub*.
2. *Porulosa*. Florida. *Shrub*.
3. *Ligustrina*. Illinois. *Shrub*.
4. *Acuminata*. Carolina and Georgia. *Shrub*.

TRIANDRIA.

1768. **Phœnix** Palma. *Spatha* universalis 1-valv. Mas. *Cal.* 3-part. *Cor.* 3-pet.—Fem. *Cal.* 3-part. *Cor.* 3-pet. *Pist.* 1. *Drupa* ovata.
1. *Dactylifera*. Africa, the E. and India. *Shr.*
2. *Reclinata*. Cape of Good Hope. *Shrub*.
3. *Farinifera*. East Indies. *Shrub*.
Given under Monœcia *Hexandria* by Persoon.

‡ 1759. **Empetrum.** Mas. *Cal.* 3-part. *Cor.* 3-pet. *Stam.* longa.—Fem. *Cal.* et *Cor.* maris. *Styli* 9. *Bacca* 9-sperma.
1. *Album*. Portugal. *Shrub*.
2. *Rubrum*. Straits of Magellan. *Shrub*.
3. *Nigrum*. Britain and other parts of Eur. *Shr.*

1762. **Maba.** Mas. *Cal.* 3-fid. *Cor.* tubulosa 3-fida.—Fem. *Cal.* inferus-3-fid. *Cor.*? *Drupa* 2-loc. locul. 2-spermis.
1. *Elliptica*. Tongataboo. *Shrub*.
* 2. *Laurina*. * 5. *Geminata*. * 7. *Reticulata*.
* 3. *Obovata*. * 6. *Littorea*. * 8. *Compacta*.
* 4. *Humilis*.
Sp. 2—8 from New Holland. See Brown, *Prodr.* p. 527.
Under this genus Persoon includes Ferreola.

1764. **Helwingia.** Mas. *Cal.* 3-part. *Cor.* 0. *Stam.* calyci inserta.—Fem. ignoti.
1. *Rusciflora*. Japan. *Shrub*.

1763. **Osyris.** Mas. *Cal.* 3 fid. *Cor.* 0.—Fem. *Cal.* 3-fid. *Cor.* 0. *Styl.* 1. *Stig.* subrotundum. *Bac.* 1-loc.
1. *Alba*. South of Europe. *Shrub*.
Under this genus Persoon includes Helwingia.

1760. **Stilago.** Mas. *Cal.* tubulosus 3-seu 4-dent. *Cor.* 0. *Stam.* 2 seu 3.—Fem. *Cal.* tubulosus 5-dent. *Cor.* 0. *Nect.* annulus ad basin germinis. *Stig.* 2, unicum 2-fid. *Drupa* 1-sperma.
1. *Bunius*. E. Ind. *Shr.* 2. *Diandra*. Do. *Shr.*

1761. **Caturus.** Mas. *Cal.* 0. *Cor.* 3 fida.—Fem. *Cal.* 3-part. *Cor.* 0. *Styl.* 3. *Caps.* 3-cocca.
1. *Spiciflorus*. India. *Shrub*.

1765. **Willdenowia.** Mas. *Cal.* multiglumis. *Cor.* 6-pet. *Nect.* carnosum 6-part. corollam cingens.—Fem. *Cal.*, *Cor.* et *Nect.* maris. *Germ.* superum. *Styl.* 1. *Stig.* 2 seu 3. *Drupa* 1-sperma.
1. *Striata*. Cape. *Per.* 2. *Teres*. Cape. *Per.*
3. *Compressa*. Cape. *Peren.*

1767. **Elegia.** Mas. *Cal.* 6-glumis inæqualis. *Cor.* 0.—Fem. *Cal.* 6-glum. inæq. *Cor.* 0. *Styli* 3. *Caps.* 3-loc.
1. *Juncea*, or *Thyrsifera*. Cape. *Peren.*
* 2. *Racemosa*. Cape. (*Enc. Bot.* vi. 177.)

1766. **Restio.** Mas. *Spica* imbricata. *Cal.* 6-glumis æqualis. *Cor.* 0.—Fem. *Cal.* et *Cor.* ut in mare. *Styl.* 2 seu 3. *Sem.* 1?
1. *Articulatus*. Tranquebar. *Peren.*
2. *Imbricatus*. Cape. 8. *Spicigerus*. Cape.
3. *Distachyos*. Cape. 9. *Tectorum*. Cape.
4. *Vaginatus*. Cape. 10. *Acuminatus*. Cape.
5. *Aristatus*. Cape. 11. *Parviflorus*. Cape.
6. *Cernuus*. Cape. 12. *Erectus*. Cape.
7. *Umbellatus*. Cape. 13. *Argenteus*. Cape.
14. *Thamnochortus*. Cape.
15. *Scariosus*. Cape. * 38. *Laxus*.
16. *Fruticosus*. Cape. * 39. *Australis*.
17. *Simplex*. N. Zeal. * 40. *Pallens*.
18. *Triflorus*. Cape. * 41. *Gracilis*.
19. *Compressus*. Cape. * 42. *Complanatus*.
20. *Distichus*. Cape. * 43. *Tremulus*.
21. *Tetragonus*. Cape. * 44. *Compressus*.
22. *Triticeus*. Cape. * 45. *Nutans*.
23. *Glomeratus*. Cape. * 46. *Cinerascens*.
24. *Incurvatus*. Cape. * 47. *Laxus*.
25. *Digitatus*. Cape. * 48. *Tropicus*.
26. *Verticillaris*. Cape. * 49. *Microstachys*.
27. *Scopa*. Cape. * 50. *Clavatus*.
28. *Virgatus*. Cape. * 51. *Fastigiatus*.
29. *Paniculatus*. Cape. * 52. *Dimorphus*.
30. *Dichotomus*. Cape. * 53. *Crispatus*.
* 31. *Elongatus*. Cape. * 54. *Pubescens*.
* 32. *Squarrosus*. Cape. * 55. *Sphacelatus*.
* 33. *Bifidus*. Cape. * 56. *Fasciculatus*.
* 34. *Squamosus*. Cape. * 57. *Flexuosus*.
* 35. *Cuspidatus*. Cape. * 58. *Tetraphyllus*.
* 36. *Monocephalus*. * 59. *Lateriflorus*.
* 37. *Deformis*.
Sp. 1—20, 22, 23, 25 perennial. Sp. 21, 24, 26–30 shrubby.
Sp. 35—59 from N. Holl. and Van Diem. Island. Sp. 59 is the *Calorophus elongata* of *Labill.* See Brown, *Prodr.* p. 245—247.

TETRANDRIA.

‡ 1778. HIPPOPHAE. MAS. *Cal.* 2-part. *Cor.* 0.—FEM. *Cal.* 2-fid. *Cor.* 0. *Styl.* 1. *Bacca* 1-sperma.
1. *Rhamnoides.* Engl. and other pts. of Eur. *Shr.*
2. *Canadensis.* Canada. *Shrub.*

1773. MONTINIA. MAS. *Cal.* 4-dent. *Cor.* 4-pet. —FEM. *Cal.* 4-dent. superus. *Cor.* 4-pet. *Styl.* 2-fid. *Stig.* reniformia. *Caps.* 2-loc. polysperma.
1. *Acris.* Cape of Good Hope. *Shrub.*

1776. BRUCEA. MAS. *Cal.* 4-part. *Cor.* 4-pet. *Nect.* 4-lob.—FEM. *Cal.*, *Cor.* et *Nect.* maris. *Pericarp.* 4, 1-sperma.
1. *Ferruginea.* Abyssinia. *Shrub.*

1775. SCHÆFFERIA. MAS. *Cal.* 4-phyll. *Cor.* 4-pet. aut nulla.—FEM. *Cal.* 4-seu 5-part. *Cor.* 4-pet. aut 0. *Bacca* 2-loc. *Sem.* solitaria.
1. *Completa.* Jamaica and Hispaniola. *Shrub.*
2. *Lateriflora.* Jamaica and Hispaniola. *Shrub.*

1772. CAVANILLA. MAS. *Cal.* 4-phyll. *Cor.* 0.—FEM. *Cal.* 4-phyll. superus. *Cor.* 0. *Styl.* in apice germinis radiatus. *Nux* anceps rugosa 1-loc.
1. *Scandens.* Cape of Good Hope. *Shrub.*

1780. NAGEIA. MAS. *Cal.* 4-phyll. *Cor.* 0.—FEM. *Cal.* 4-phyll. *Cor.* 0. *Styl.* 2-fid. *Drupa* 1-sperma.
1. *Japonica.* Japan. *Shrub.*
2. *Arabica.* Arabia Felix. *Shrub.*

1770. TROPHIS. MAS. *Cal.* 0. *Cor.* 4-pet.—FEM. *Cal.* 0. *Cor.* 0. *Styl.* 2-part. *Bacca* 1-sperma.
1. *Americana.* West Indies. *Shrub.*
2. *Laurifolia.* Quito. *Shrub.*
3. *Aspera.* India. *Shr.* 4. *Spinosa.* Do. *Shr.*

‡ 1774. VISCUM. MAS. *Cal.* 4-part. *Cor.* 0. *Fil.* 0. *Anth.* calyci adnatæ.—FEM. *Cal.* 4-phyll. superus. *Styl.* 0. *Cor.* 0. *Bacca* 1-sperma. *Sem.* cordatum.
1. *Album.* England and other parts of Europe.
2. *Macrostachyon.* Martinique.
3. *Orientale.* India. 5. *Rubrum.* Carolina.
4. *Pauciflorum.* Cape. 6. *Purpureum.* Do.
7. *Buxifolium.* West Indies.
8. *Myrtilloides.* Martinique.
9. *Rotundifolium.* Cape.
10. *Antarcticum.* New Zealand.
11. *Capense.* Cape. 12. *Vaginatum.* Mexico.
13. *Opuntioides.* Jamaica.
14. *Obscurum.* Cape. 16. *Latifolium.* Jamaica.
15. *Flavens.* Jamaica. 17. *Verticillatum.* Do.
* 18. *Oxycedri.* Provence. (Decand. *Fl. Cl.*)
All shrubby.

1769. ANTHOSPERMUM. MAS. *Cal.* 4-part. *Cor.* 0. —FEM. *Cal.* 4-part. *Cor.* 0. *Germ.* inferum. *Styl.* 2 reflexi.
1. *Lanceolatum.* Cape. 3. *Ciliare.* Do. *Sh.*
2. *Æthiopicum.* Do. *Shr.* 4. *Scabrum.* Do.

1781. KOELERA. MAS. *Cal.* 4-part. *Cor.* 0. *Nect.* squamæ 4. *Stam.* cal. longiora.—FEM. *Cal.* 4-part. *Caps.*? 1-sperma.
1. *Laurifolia.* St Domingo. *Shrub.*

1771. BATIS. MAS. *Ament.* 4-fariam imbric. *Cal.* squama. *Cor.* 0.—FEM. *Ament.* ovatum : involucro diphyllo. *Cal.* 0. *Cor.* 0. *Stig.* 2-lob. sessile. *Bac.* coadunatæ, 4-spermæ.
1 *Maritima.* Jamaica. *Shrub.*

‡ 1779. MYRICA. MAS. *Ament.* oblongum. *Cal.* squama ovata. *Cor.* 0.—FEM. *Ament.* oblong. *Cal.* squama ovata. *Cor.* 0. *Styli* 2. *Drupa* 1-sperma.
1. *Gale.* England, &c. and America.
2. *Cerifera.* From Pennsylvania to Carolina.
3. *Carolinensis.* From Pennsylvania to Florida.
4. *Pubescens.* New Granada.
5. *Faya.* Portugal, Madeira, and the Azores.
6. *Segregata.* Warm parts of America.
7. *Æthiopica.* Cape. 9. *Quercifolia.* Cape.
8. *Serrata.* Cape. 10. *Cordifolia.* Cape.
All shrubby.

1777. BROUSSONETIA. MAS. *Ament.* cylindraceum. *Cal.* 4-part. *Cor.* 0.—FEM. *Ament.* globosum receptaculis cylindraceo-clavatis compositum. *Cal.* 3-seu-4-dent. in apice receptaculi. *Styl.* lateralis subulatus. *Sem.* 1, calyce tectum.
1. *Papyrifera.* Japan, and the isles of the Pacific. *Shrub.*

PENTANDRIA.

1791. IRESINE. MAS. *Cal.* 2-phyll. *Cor.* 5-pet. *Nect.* 5 seu 7.—FEM. *Cal.* 2-phyll. *Cor.* 5-pet. *Stig.* 2, sessilia. *Caps.* seminibus tomentosis.
1. *Celosioides.* Virginia and Florida. *Ann.*
2. *Diffusa.* S. Amer. 5. *Flavescens.* S. Amer.
3. *Elongata.* Do. 6. *Elatior.* Do. *Ann.*
4. *Canescens.* Do. *Shr.*

1794. CANNABIS. MAS. *Cal.* 5-part. *Cor.* 0.—FEM. *Cal.* 1-phyll. integer, latere hians. *Cor.* 0. *Styl.* 2. *Nux* 2-valv. intra calycem clausum.
1. *Sativa.* Persia. *Ann.*

‡ 1795. HUMULUS. MAS. *Cal.* 5-phyll. *Cor.* 0.—FEM. *Cal.* 1-phyll. oblique patens, integer. *Cor.* 0. *Styli* 2. *Sem.* 1, intra calycem foliatum.
1. *Lupulus.* England, &c. and America. *Per.*

1782. PISTACIA. MAS. *Cal.* 5-fid. *Cor.* 0.—FEM. *Cal.* 3-fid. *Cor.* 0. *Styli* 3. *Drupa* 1-sperma.
1. *Trifolia.* Sicily. *Shrub.*
2. *Reticulata.* The East. *Shrub.*
3. *Vera.* Persia, Syria, Arabia, India. *Shrub.*
4. *Terebinthus.* S. of Eur. Barbary, India. *Shr.*
5. *Atlantica.* Barbary. *Shrub.*
6. *Lentiscus.* South of Eur. and Palestine. *Shr.*

1796. ZANONIA. MAS. *Cal.* 3-phyll. *Cor.* 5-part. —FEM. *Cal.* 3-phyll. *Cor.* 5-part. *Styli* 3. *Bac.* 3-loc. inf. *Sem.* 2.
1. *Indica.* Malabar and Ceylon. *Peren.*

1789. PICRAMNIA. MAS. *Cal.* 3-seu 5-part. *Cor.* 3-seu 5-pet. *Stam.* 3 seu 5.—FEM. *Cal.* et *Cor.* maris. *Styli* 2. *Bac.* 2-loc. 2-sperma.
1. *Antidesma.* Jamaica and Hispaniola. *Shr.*
2. *Pentandra.* West Indies. *Shrub.*

1788. SECURINEGA. MAS. *Cal.* 5-part. *Cor.* 0. *Stam.* 5 sub rudimento pistilli inserta.—FEM. *Cal.*? *Cor.*? *Styl.*? *Caps.* 3-cocca.
1. *Nitida.* Mauritius. *Shrub.*

1792. SPINACIA. MAS. *Cal.* 5-part. *Cor.* 0.—FEM. *Cal.* 4-fid. *Cor.* 0. *Styli* 4. *Sem.* 1, intra calycem induratum.
1. *Oleracea.* *Ann.* 2. *Fera.* Siberia. *Ann.*

1793. ACNIDA. MAS. *Cal.* 5-part. *Cor.* 0.—FEM. *Cal.* 3-part. *Cor.* 0. *Styli* 0. *Stig.* 3 sessilia. *Caps.* 1-sperma.
1. *Cannabina.* Virginia. *Ann.*
2. *Ruscocarpa.* Virginia. *Ann.*

1790. ANTIDESMA. MAS. *Cal.* 5-phyll. *Cor.* 0. *Anth.* 2-fidæ.—FEM. *Cal.* 5-phyll. *Cor.* 0. *Stig.* 5. *Bac.* cylindrica, 1-sperma.

1. *Alexiteria.* India. *Shrub.*
2. *Madagascariensis.* Madagascar. *Shrub.*
3. *Zeylanica.* Ceylon. *Shrub.*
4. *Sylvestris.* East Indies. *Shrub.*
5. *Acida.* Do. *Shr.* 6. *Pubescens.* Do. *Shr.*
7. *Paniculata.* Do. *Shrub.*

1784. Fluggea. Mas. *Calyx* 5-phyll. *Cor.* 0. *Rudim.* pistilli.—Fem. *Calyx* 5-phyll. *Cor.* 0. *Styl.* 2-part. *Stig.* recurvata 2-fida. *Bac.* 4-sperma. *Sem.* arillata.

1. *Leucopyrus.* East Indies. *Shrub.*

1798. Savia. Mas. *Cal.* 5-phyll. *Cor.* 3-seu 5-pet. *Nect.* margo carnosus.—Fem. *Cal.* 5-phyll. *Cor.* 3-seu 5-pet. *Nect.* margo carnosus. *Styli* 3, bifidi. *Caps.* 3-cocca 3-loc.

1. *Sessiliflora.* Hispaniola. *Shrub.*

1786. Astronium. Mas. *Cal.* 5-phyll. *Cor.* 6-pet. —Fem. *Cal.* et *Cor.* maris. *Styli* 3. *Sem.* 1.

1. *Graveolens.* Woods of Carthagena. *Shrub.*

1785. Melicytus. Mas. *Cal.* 5-dent. *Cor.* 5-pet. *Nect.* squamæ 5 clavatæ cyathiformes.—Fem. *Cal.* et *Cor.* maris. *Nect.* squamæ 5, 3-angulares. *Caps.* baccata 1-loc. 4-seu 5-valv. sub-5-sperma.

1. *Ramiflorus.* New Zealand. *Shrub.*

1787. Canarium. Mas. *Cal.* 2-phyll. *Cor.* 3-pet. —Fem. *Cal.* 2-phyll *Cor.* 3-pet. *Stig.* sessile. *Drupa* nuce 3-gona, 3-loc.

1. *Commune.* Moluccas. 4. *Hirsutum.* Moluccas.
2. *Sylvestre.* Amboyna. 5. *Microcarpum.* Do.
3. *Balsamiferum.* Do. 6. *Decumanum.* Do.
*7. *Pimela.* China and Cochinchina. (*Lour.*)

All shrubby. See *Annals of Botany,* vol. i. p. 36.

1783. Zanthoxylum. Mas. *Cal.* 5-part. *Cor.* 0. Fem. *Cal.* 5-part. *Cor.* 0. *Pist.* 5. *Caps.* 5, 1-spermæ.

1. *Ternatum.* Dominica. 7. *Aromaticum.*
2. *Emarginatum.* Jamaica. 8. *Rhoifolium.* E. Ind.
3. *Acuminatum.* Do. 9. *Juglandifolium.* Dom.
4. *Punctatum.* St Cruz. 10. *Rigidum.* S. America.
5. *Spinosum.* Jamaica. 11. *Hermaphroditum.* Gui.
6. *Clava Herculis.* W. Ind. 12. *Fraxineum.* N. Amer.

All shrubby.

1797. Feuillea. Mas. *Cal.* 5-fid. *Cor.* 5-fida. *Stam.* 5. *Nect.* *Fil.* 5, conniventia.—Fem. *Cal.* 5-fid. *Styl.* 5. *Pom.* durum. 3-loc. corticosum.

1. *Trilobata.* E. Indies. *Shr.* 2. *Cordifolia.* W. Ind.

Hexandria.

1800. Smilax. Mas. *Cal.* 6-phyll. *Cor.* 0.—Fem. *Cal.* 6-phyll. *Cor.* 0. *Styli* 3. *Bac.* 3 loc. *Sem.* 2.

1. *Aspera.* Europe and Palestine. *Shrub.*
2. *Nigra.* Spain and Portugal. *Shrub.*
3. *Mauritanica.* Barbary. *Shrub.*
4. *Dentata.* South America. *Shrub.*
5. *Excelsa.* The East. *Shrub.*
6. *Zeylanica.* Ceylon. *Shrub.*
7. *Quadrangularis.* North America. *Shrub.*
8. *Longifolia.* Cayenne. *Shrub.*
9. *Sarsaparilla.* Virginia. *Shrub.*
10. *Maypurensis.* Oronoco. *Shrub.*
11. *Oblongata.* Caribbees. *Shrub.*
12. *Lappacea.* Caraccas. *Shrub.*
13. *Perfoliata.* Cochinchina. *Shrub.*
14. *Cordifolia.* Mexico. *Shrub.*
15 *China.* China, Japan, and Bourbon. *Shr.*
16. *Cordato-ovata.* Cayenne. *Shrub.*
17. *Acuminata.* West Indies. *Shrub.*
18. *Rotundifolia.* North America. *Shrub.*
19. *Laurifolia.* North America. *Shrub.*
20. *Siphilitica.* South America. *Shrub.*
21. *Tamnoides.* North America. *Peren.*
22. *Caduca.* Canada. *Shrub.*
23. *Havanensis.* Havannah. *Shrub.*
24. *Bona nox.* Carolina. *Shrub.*
25. *Hastata.* Carolina and Florida. *Shrub.*
26. *Anceps.* Mauritius. *Shrub.*
27. *Herbacea.* North America. *Peren.*
28. *Scabriuscula.* Caraccas. *Shrub.*
29. *Cumanensis.* Cumana. *Shrub.*
30. *Domingensis.* Domingo. *Shrub.*
31. *Lanceolata.* Virginia. *Shrub.*
32. *Triplinervia.* River Atabapo. *Shrub.*
33. *Ripogonum.* New Zealand. *Shrub.*
34. *Purpurata.* New Caledonia. *Shrub.*
35. *Canariensis.* Teneriffe. *Shrub.*
36. *Pubera.* Carolina, Georgia. *Shrub.*
37. *Mollis.* Mexico. *Shrub.*
38. *Pseudo-China.* Virginia, Jamaica. *Shrub.*
39. *Macrophylla.* West Indies. *Shrub.*
40. *Peduncularis.* Canada and Pennsylvania. *Per.*
41. *Aristolochiæfolia.* Domingo. *Shrub.*
*42. *Catalonica.* Catalonia and Bermudas. } Duham.
*43. *Papyracea.* Cayenne. } *Arb.* N.
*44. *Viscifolia.* St Domingo. } Ed. ii.
*45. *Obliquata.* Peru. } 234.
*46. *Australis.* N. S. Wales. } Smith in White's
*47. *Glyciphylla.* N. S. Wales. } *Voyage.*
*48. *Elliptica.* N. Holland. } R. Brown, *Prodr.*
*49. *Latifolia.* N. Holland. } p. 293.

‡ 1799. Tamus. Mas. *Cal.* 6-part. *Cor.* 0.—Fem. *Cal.* 6 part. *Cor.* 0. *Styl.* 3-fid. *Bacca* 3-loc., infera. *Sem.* 2.

1. *Communis.* England and in the East. *Peren.*
2. *Elephantipes.* Cape. *Per.* 3. *Cretica.* Cand. *Pe.*

1802. Dioscorea. Mas. *Cal.* 6-part. *Cor.* 0. Fem. *Cal.* 6-part. *Cor.* 0. *Styli* 3. *Caps.* 3-loc., compressa. *Sem.* 2, membranacea.

1. *Pentaphylla.* India. 14. *Scabra.* Oronoco.
2. *Triphylla.* Malabar. 15. *Aspera.* Do.
3. *Septemloba.* Japan. 16. *Cuspidata.* Do.
4. *Quinqueloba.* Do. 17. *Coriacea.* S. Amer.
5. *Triloba.* S. Amer. 18. *Polygonoides.* Oron.
6. *Brasiliensis.* Brasil. 19. *Sativa.* India.
7. *Cajennensis.* Cayen. 20. *Piperifolia.* S. Am.
8. *Aculeata.* Malabar. 21. *Eburnea.* Cochinch.
9. *Nummularia.* Moluc. 22. *Villosa.* S. Amer.
10. *Verticillata.* Java. 23. *Altissima.* Martiniq.
11. *Alata.* India. 24. *Oppositifolia.* India.
12. *Bulbifera.* Do. and New Holland. 25. *Cirrhosa.* Peru.
13. *Japonica* Japan. 26. *Angustifolia.* Cochinchina.
*27. *Palmata.* S. America. (*Jussieu.*)
*28. *Peltata.* (*Herbarium* of Jussieu.)
*29. *Punctata.* N. Holland. } R. Brown, *Prodromus,* p. 294.
*30. *Transversa.* N. S. Wales. }
*31. *Lucida.* New Holland. }

Sp. 1—26 perennial.

1801. Rajania. Mas. *Cal.* 6-part. *Cor.* 0. Fem. *Cal.* 6-part. *Cor.* 0. *Styli* 3. *Samaræ* 1-spermæ, apice alatæ.

1. *Angustifolia.* Hispaniola. *Ann.*
2. *Mucronata.* Domingo. *Peren.*
3. *Hastata.* Domingo. *Peren.*
4. *Ovata.* Do. *Shr.* 5. *Cordata.* S. Amer. *Per.*
6. *Quinquefolia.* West Indies. *Peren.*

7. *Quinata.* Japan. *Per.* 8. *Hexaphylla.* Do. *Per.*
*9. *Lobata.* Peru. *10. *Flexuosa.* Peru.

1803. **Braunea.** Mas. *Cal.* 3-phyll. *Cor.* 3-pet. *Nect.* squamæ 6.—Fem. *Cal.* 3-phyll. *Cor.* 3-pet. *Nect.* 0. *Styli* 3.
   1. *Menispermoides.* India. *Shrub.*

1804. **Ferreola.** Mas. *Cal.* 3-dent. *Cor.* tubulosa 3-fida. *Stam.* receptaculo inserta.—Fem. *Cal.* et *Cor.* maris. *Styl.* 1. *Bacca* disperma.
   1. *Buxifolia.* India. *Shrub.*
   Given under Maba by Persoon.

1806. **Chamædorea.** Mas. *Cal.* 3-part. *Cor.* 3-part. *Stam.* 6. *Styli* rudimentum staminibus longius.—Fem. *Cal.* 3-part. *Cor.* 3-pet. *Nect.* squamæ, 3 inter pet. et germen. *Styli* 3. *Drupa* succulenta 1-sperma.
   1. *Gracilis.* Caraccas. *Shrub.*

1808. **Mauritia.** Mas. *Cal.* cyathiformis sub-3-dent. *Cor.* 3-pet.—Fem. *Cal.* *Cor.* et *Pist.* ignoti. *Drupa* 1-sperma imbricata.
   1. *Flexuosa.* Surinam. *Shrub.*

1807. **Borassus.** Mas. *Cal.* 3-phyll. *Cor.* hypocrateriformis limbo 3-part.—Fem. *Cal.* 8 seu 9-phyll. imbric. *Cor.* 0. *Stam.* 8 monadelpha. *Styl.* 0. *Drupa* 3-pyrena.
   1. *Flabelliformis.* East Indies. *Shrub.*

1805. **Elais.** Mas. *Cal.* 6-phyll. *Cor.* 6-fid.—Fem. *Cal.* 6-phyll. *Cor.* 6-pet. *Styl.* 1. *Stig.* 3. *Drupa* 1-sperma fibrosa. *Nux* 3-valv.
   1. *Guineensis.* Guinea. *Shrub.*
   2. *Occidentalis.* Jamaica. *Shrub.*

OCTANDRIA.

‡ 1809. **Populus.** Mas. *Ament.* cylindraceum. *Cal.* squama lacera. *Cor.* turbinata, obliqua, integra.—Fem. *Ament.* cylindraceum. *Cal.* et *Cor.* maris. *Stig.* 4-fid. *Caps.* 2-loc. *Sem.* multa papposa.
   1. *Alba.* England, France, Germany, Italy.
   2. *Canescens.* England, France, Germany.
   3. *Trepida.* N. Amer.
   4. *Tremula.* Eng. &c.
   5. *Lævigata.* N. Amer.
   6. *Græca.* Archipelago Isles.
   7. *Nigra.* Engl. &c.
   8. *Dilatata.* Italy.
   9. *Monilifera.* N. Amer.
   10. *Angulata.* N. Amer.
   11. *Balsamifera.* North Amer. and Siberia.
   12. *Candicans.* Canada.
   13. *Heterophylla.* N. Am.
   *14. *Grandidentata.* Canada.
   All shrubby.

‡ 1811. **Rhodiola.** Mas. *Cal.* 4-part. *Cor.* 4-pet.—Fem. *Cal.* 4-part. *Cor.* 0. *Nect.* 4. *Pist.* 4. *Caps.* 4, polyspermæ.
   1. *Rosea.* Brit. Lapland, Austria, Switz. *Per.*

1810. **Commiphora.** Mas. *Cal.* 4-dent. *Cor.* 4-pet. erecta. *Stam.* 8 alterna majora.—Fem. ignoti.
   1. *Madagascarensis.* Madagascar. *Shrub.*

1812. **Margaritaria.** Mas. *Cal.* 4-dent. *Cor.* 4-pet.—Fem. *Cal.* et *Cor.* maris. *Styli* 4 seu 5. *Bacc.* 4 seu 5-sperma. *Sem.* arillo 5-cocco inclusa.
   1. *Nobilis.* Antilles and Guiana. *Shrub.*

1813. **Hermesia.** Mas. *Cal.* 2 seu 3-phyll. *Cor.* 0. *Fil.* brevissima.—Fem. *Cal.* 4 seu 5-phyll. *Cor.* 0. *Styli* 2. *Caps.* 2-loc. disperma.
   1. *Castaneifolia.* Banks of the Orinoco. *Shr.*

ENNEANDRIA.

‡ 1814. **Mercurialis.** Mas. *Cal.* 3-part. *Cor.* 0. *Stam.* 9 seu 12. *Anth.* globosæ, didymæ.—Fem. *Cal.* 3-part. *Cor.* 0. *Styli* 2. *Caps.* 2-cocca, 2-loc., 1-sperma.
   1. *Perennis.* England, &c. *Peren.*
   2. *Ambigua.* Spain and Portugal. *Ann.*
   3. *Annua.* England, &c. *Ann.*
   4. *Elliptica.* Portugal and Madeira. *Shrub.*
   5. *Longifolia.* 6. *Tomentosa.* Fran. Spain. *Shr.*

‡ 1815. **Hydrocharis.** Mas. *Spatha* 2-phylla. *Cal.* 3-fid. *Cor.* 3-pet. *Fil.* 3 interiora stylifera.—Fem. *Cal.* 3-fid. *Cor.* 3-pet. *Styli* 6. *Caps.* 6-loc., polysperma, infera.
   1. *Morsus ranæ.* Engl. and other pts. of Eur. *Per.*

1816. **Triplaris.** Mas. *Cal.* 3-part. *Cor.* 3-pet. *Stam.* 9.—Fem. *Cal.* 3-part. inf. *Cor.* 3-pet. *Styl.* 3. *Caps.* 1-sperma 3-valv.
   1. *Americana.* Carthagena. *Shrub.*
   2. *Ramiflora.* Carthagena. *Shrub.*

DECANDRIA.

1817. **Carica.** Mas. *Cal.* subnullus. *Cor.* 5-fida, infundib. *Fil.* in tubo corollæ: alterna breviora.—Fem. *Cal.* 5-dent. *Cor.* 5-pet. *Stig.* 5. *Bacc.* 1-loc. polysperma.
   1. *Papaya.* India. *Shr.* 2. *Pyriformis.* Peru. *Shr.*
   3. *Cauliflora.* Caraccas. *Shrub.*
   4. *Microcarpa.* Caraccas and Chili. *Shrub.*
   5. *Spinosa.* Guiana. *Shrub.*

1818. **Gymnocladus.** Mas. *Cal.* 5-dent. *Cor.* 5-pet.—Fem. *Cal.* 5-dent. *Cor.* 5-pet. *Styl.* 1. *Legum.* 1-loc. intus pulposum.
   1. *Canadensis.* Canada. *Shrub.*

1819. **Kiggelaria.** Mas. *Cal.* 5-part. *Cor.* 5-pet.: glandulæ 5, 3-lobæ. *Anth.* apicibus perforatæ.—Fem. *Cal.* et *Cor.* maris. *Styli* 5. *Caps.* 1-loc., 5-valv., polysperma.
   1. *Africana.* Cape. *Shr.* 2. *Integrifolia.* Do. *Shr.*

1821. **Coriaria.** Mas. *Cal.* 5-part. *Cor.* 0. *Gland.* 5. *Anth.* 2-part.—Fem. *Cal.* 5-part. *Cor.* 0. gland. 5, germinibus interpositæ. *Styl.* 5. *Caps.* 5, 1-spermæ glandulis ampliatis obtectæ.
   1. *Myrtifolia.* S. of France and Spain. *Shr.*
   2. *Sarmentosa.* New Zealand. *Shrub.*
   3. *Ruscifolia.* Peru. *Shr.* 4. *Phylicifolia.* Do. *Sh.*
   5. *Thymifolia.* Peru. *Shrub.*

1820. **Schinus.** Mas. *Cal.* 5-fid. *Pet.* 5.—Fem. *Flos.* maris. *Bacca* 3-cocca.
   1. *Molle.* Brasil. *Shrub.*

DODECANDRIA.

‡ 1822. **Stratiotes.** Mas. *Spatha* 2-phylla. *Cal.* 3-part. *Cor.* 3-pet. *Nect.* 20, antheriformia. *Stam.* 11-13.—Fem. *Spatha*, *Cal.*, *Cor.* et *Nect.* maris. *Germ.* inferum 6-angulare. *Styli* 6, 2-part. *Bacc.* 6-loc. polysperma.
   1. *Aloides.* Engl. and other parts of Eur. *Per.*
   2. *Acoroides.* Ceylon.
   3. *Nymphoides.* Caraccas. *Peren.*
   Given by Smith under Polyandria Hexagynia.

1824. **Euclea.** Mas. *Cal.* 5-dent. *Cor.* 5-part. *Stam.* 15.—Fem. *Cal.* et *Cor.* maris. *Germ.* sup. *Styli* 2. *Caps.* baccata 3-cornis 3-loc. *Sem.* solitaria arillata.
   1. *Lancea.* Cape. *Shr.* 2. *Racemosa.* Do. *Shr.*
   3. *Undulata.* Cape. *Shrub.*

1826. Menispermum. Mas. *Cal.* 2-phyll. *Pet.* 4 seu 6-exteriora, 8-int. *Stam.* 16.—Fem. *Cor.* maris. *Stam.* 8, sterilia. *Germ.* 2 seu 3. *Bac.* 2, 1-spermæ.
1. *Canadense.* Virginia, Siberia. *Shrub.*
2. *Virginicum.* Virginia, Carolina. *Shrub.*
3. *Trilobum.* Japan. *Shrub.*
4. *Palmatum.* Mauritius. *Shrub.*
5. *Carolinum.* Carolina, Georgia, Florida. *Shr.*
6. *Hastatum.* E. Ind. *Shr.* 7. *Coculus.* Java. *Shr.*
8. *Cordifolium.* East Indies. *Shrub.*
9. *Malabaricum.* Malabar. *Shrub.*
10. *Amarum.* Guiana. *Shrub.*
11. *Acutum.* Japan. *Shr.* 12. *Crispum.* Beng. *Shr.*
13. *Peltatum.* East Indies. *Shrub.*
14. *Japonicum.* Japan. *Shrub.*
15. *Abuta.* Guiana. *Shrub.*
16. *Orbiculatum.* Crocodile Isles in Asia. *Shr.*
17. *Edule.* Arabia Felix. *Shrub.*
18. *Hirsutum.* East Indies. *Shrub.*
19. *Myosotoides.* East Indies. *Shrub.*
* 20. *Ovalifolium.* India. (*Herb.* of Jussieu.)
* 21. *Flavescens.* Moluccas.
* 22. *Lacunosum.* Celebes. Lam. *Enc.* iv.
* 23. *Radiatum.* India. *Shr.* p. 98.
* 24. *Acuminatum.* Do. *Shr.*
* 25. *Fenestratum.* Ceylon. (Gærtn. *de Fr.* i. 219.)

1825. Datisca. Mas. *Cal.* 5-phyll. *Cor.* 0. *Anth.* sessiles, oblongæ, 15.—Fem. *Cal.* 2-dent. *Cor.* 0. *Styli* 3. *Caps.* 3-angularis, 3 cornis, 1-loc., pervia, polysperma, infera.
1. *Cannabina.* Candia. *Per.* 2. *Hirta.* Pennsylv.

1823. Toxicodendrum, or Hyænanche. Mas. *Cal.* 5-7-phyll. *Cor.* 0. *Stam.* 10-20.—Fem. *Cal.* 7-8-phyll. imbric. *Cor.* 0. *Styl.* 1. *Stig.* 3. *Caps.* 3-loc. 3-cocca, loculis dispermis.
1. *Capense.* Cape of Good Hope. *Shrub.*

Icosandria.

1829. Rottlera. Mas. *Cal.* 2-part. *Cor.* 0. *Stam.* 30-40.—Fem. *Cal.* 4-dent. *Cor.* 0. *Styli* 3. *Caps.* 3-loc. 3-cocca, 3-sperma.
1. *Tinctoria.* India. *Shrub.*

1828. Gelonium. Mas. *Cal.* 5-phyll. *Cor.* 0. *Stam.* 12.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Styli* 0. *Stig.* 3 lacera. *Caps.* 3-loc. 3-valv. 3-sperma.
1. *Bifarium.* East Indies. *Peren.*
2. *Lanceolatum.* East Indies. *Shrub.*

1827. Flacourtia. Mas. *Cal.* 5-part. *Cor.* 0. *Stam.* 50-100.—Fem. *Cal.* 5-phyll. *Cor.* 0. *Stig.* stellatum sessile. *Bac.* multiloc. loc. dispermis.
1. *Ramontchi.* Madagascar. *Shrub.*
2. *Flavescens.* Guinea. *Shrub.*
3. *Cataphracta.* East Indies. *Shrub.*
4. *Sapida.* E. Ind. *Shr.* 5. *Sepiaria.* Do. *Shr.*

1830. Hedycaria. Mas. *Cal.* planus, 8-seu 10-fid. *Cor.* 0. *Anth.* 50 sessiles barbatæ.—Fem. *Cal.* et *Cor.* maris. *Germ.* numerosa. *Nuces* 6-10.
1. *Dentata.* New Zealand. *Shr.*

Polyandria.

1835. Perula. Mas. *Cal.* diphyll. *Pet.* 1 concavum. *Nect.* squamæ multifidæ. *Stam.* 24-30.—Fem. *Cal.*, *Cor.* et *Nect.* maris. *Germina* 4. *Caps.* 3-loc. 3-valv. 3-sperma.
1. *Arborea.* Mariquita in America. *Shrub.*

1837. Cliffortia. Mas. *Cal.* 3-phyll. *Cor.* 0. *Stam.* fere 30.—Fem. *Cal.* 3-phyll., superus. *Cor.* 0. *Styli* 2. *Caps.* 2-loc. *Sem.* 1.
1. *Odorata.*
2. *Serrata.*
3. *Ferruginea.*
4. *Cuneata.*
5. *Ilicifolia.*
6. *Tridentata.*
7. *Ruscifolia.*
8. *Strobilifera.*
9. *Graminea.*
10. *Cinerea.*
11. *Pulchella.*
12. *Crenata.*
13. *Ericæfolia.*
14. *Teretifolia.*
15. *Filifolia.*
16. *Juniperina.*
17. *Obcordata.*
18. *Dentata.*
19. *Trifoliata.*
20. *Ternata.*
21. *Sarmentosa.*
22. *Falcata.*

All small shrubs, and from the Cape.

1833. Trewia. Mas. *Cal.* 3-phyll. *Cor.* 0.—Fem. *Cal.* 4-fid. *Cor.* 0. *Styl.* 1. *Stig.* 4 plumosa. *Caps.* 4-cocca, 4-sperma, 4-loc.
1. *Nudiflora.* India. *Shrub.*
2. *Tricuspidata.* Cochinchina. *Shrub.*

1832. Xylosma. Mas. *Cal.* 4 seu 5-part. *Cor.* 0. *Nect.* glandula, annularis. *Stam.* 20-50.—Fem. *Cal.* *Cor.* et *Nect.* maris. *Styl.* 0. *Stig.* sub-3-fid. *Bacca?* subbilocularis disperma.
1. *Suaveolens.* Society Isles. *Shrub.*
2. *Orbiculatum.* Savage Isl. in the Pacific. *Shr.*

1834. Hisingera. Mas. *Cal.* 4-phyll. *Cor.* 0. *Stam.* 15-25.—Fem. *Cal.* 6-phyll. *Cor.* 0. *Styl.* 2. *Bac.* didyma, 2-loc. disperma.
1. *Nitida.* Warm parts of America. *Shrub.*

1836. Embryopteris. Mas. *Cal.* 4-dent. *Cor.* 4-fid. *Stam.* 20. *Anth.* 2-fid.—Fem. *Cal.* 4-dent. *Cor.* 4-fida. *Stig.* cruciatum, sessile. *Pomum* 8-spermum.
1. *Glutinifera.* Mts. of the East Indies. *Shr.*
Given under Diospyros by Persoon.

1831. Hamadryas. Mas. *Cal.* 5-seu 6-phyll. *Cor.* 10-seu 12-pet. *Stam.* 50.—Fem. *Cal.* 5-seu 6-phyll. *Cor.* 10 seu 12-pet. *Germ.* numerosa. *Sem.* numerosa.
1. *Magellanica.* Straits of Magellan. *Peren.*

1838. Cycas. Mas. *Ament.* imbric. *Cal.* squama spathulata. *Cor.* 0. *Anth.* globosæ in squama sessiles.—Fem. *Spadix* compresso-anceps. *Cal.* 0. *Cor.* 0. *Styl.* 1. *Drupa* 1-sperma.
1. *Circinalis.* India. *Shrub.*
2. *Revoluta.* Japan and China. *Shrub.*
* 3. *Thuarsii.* Madagascar. (*Thuars.*)
* 4. *Angulata.* N. Holl. (Brown, *Prodr.* p. 348.)
This genus is given under Cryptogamia by Linnæus.

1839. Zamia. Mas. *Ament.* strobiliforme. *Cal.* squama obovata. *Cor.* 0. *Anth.* globosæ, rima dehiscentes in squama, sessiles.—Fem. *Ament.* strobiliforme. *Cal.* squamæ peltatæ. *Cor.* 0. *Germ.* 2. *Styli* 0. *Baccæ* 2, 1-spermæ.
1. *Cycadifolia.* Cape.
2. *Pungens.* Cape.
3. *Tridentata.* Cape.
4. *Angustifolia.* Bahamas.
5. *Tenuis.* Bahamas.
6. *Media.* East Indies.
7. *Debilis.* East Indies.
8. *Integrifolia.* Domingo and Florida.
9. *Muricata.* S. Amer.
10. *Furfuracea.* W. Ind.
11. *Spiralis.* N. Holl.
12. *Longifolia.* Cape.
13. *Lanuginosa.* Cape.
14. *Horrida.* Cape.

All shrubby.

"Species Amer. quæ Zamiæ genuinæ, a Capensibus et N. Holl. forsan genere distinguendæ," &c. &c. See Brown, *Prodr.* p. 348.

This genus is given under Cryptogamia by Linnæus.

MONADELPHIA.

1840. **ARAUCARIA.** Mas. *Ament.* imbric. *Cal.* squama sublignosa. *Cor.* 0. *Anth.* 10-12 in squama connatæ.—Fem. *Ament.* strobiliforme. *Cal.* squama lanceolata coriacea 2-flora. *Cor.* 0. *Styl.* 0. *Stig.* 2-valve. *Nux* coriacea cuneiformis apice alata.

1. *Imbricata.* Chili on the Andes. *Shrub.*

‡ 1841. **JUNIPERUS.** Mas. *Ament.* ovatum. *Cal.* squama. *Cor.* 0. *Stam.* 3.—Fem. *Cal.* 3-part. *Pet.* 3. *Styli* 3. *Bac.* 3-sperma, tribus tuberculis calycis inæqualis.

1. *Thurifera.* Spain and Mexico. *Shrub.*
2. *Barbadensis.* Warm parts of America. *Shr.*
3. *Bermudiana.* Bermudas. *Shrub.*
4. *Chinensis.* China. *Shrub.*
5. *Excelsa.* At the Caspian and in Jamaica.
6. *Sabina.* Portugal, Italy, and Siberia. *Shr.*
7. *Fœtidissima.* Armenia. *Shrub.*
8. *Virginiana.* Virginia and Carolina. *Shrub.*
9. *Communis.* Britain and cold parts of Europe. *Shrub.*
10. *Nana.* Salzburg, Styria, and Siberia. *Shr.*
11. *Oxycedrus.* Spain and France. *Shrub.*
12. *Phœnicea.* S. of Europe and the East. *Shr.*
13. *Lycia.* France and Siberia. *Shrub.*

* 14. *Drupacea.* Syria. (Labillard. *Pl. Syr.*)

‡ 1842. **TAXUS.** Mas. *Cal.* 4-phyll. gemmæ. *Cor.* 0. *Stam.* multa. *Anth.* peltatæ 8-fid.—Fem. *Cal.* 4-phyll. gemmæ. *Cor.* 0. *Styl.* 0. *Sem.* 1, calyculo baccato, integerrimo.

1. *Baccata.* England, Europe, and Siberia. *Shr.*
2. *Canadensis.* Canada. *Shrub.*
3. *Elongata.* Cape. *Shrub.*
4. *Montana.* Peru and Mexico. *Shrub.*
5. *Nucifera.* Japan. *Shrub.*
6. *Macrophylla.* Japan. *Shrub.*
7. *Latifolia.* Cape of Good Hope. *Shrub.*
8. *Falcata.* Cape of Good Hope. *Shrub.*
9. *Tomentosa.* Cape. *Shrub.*
10. *Verticillata.* Japan. *Shrub.*

1843. **EPHEDRA.** Mas. *Amenti Cal.* 2-fid. *Cor.* 0. *Stam.* 7. *Anth.* 4 inferiores 3 sup.—Fem. *Cal.* 2-part. quintuplex. *Cor.* 0. *Pist.* 2. *Sem.* 2, calyce baccato tecta.

1. *Distachya.* France, Spain, Switz. Barbary. *Shrub.*
2. *Monostachya.* Siberia and Hungary. *Shr.*
3. *Altissima.* Barbary. *Shrub.*
4. *Fragilis.* Barbary and Candia. *Shrub.*
5. *Americana.* Peru. *Shrub.*

1846. **EXCOECARIA.** Mas. *Ament.* cylindraceum. *Cal.* squama. *Cor.* 0. *Fil.* 3-part.—Fem. *Cal.* squamæ 3. *Cor.* 0. *Caps.* 3-cocca.

1. *Agallocha.* E. Indies, Amboyna, Ceylon.
2. *Camettia.* E. Ind. 4. *Lucida.* Jamaica.
3. *Tinifolia.* Jamaica. 5. *Glandulosa.* Jamaic.

All shrubby.

1844. **CISSAMPELOS.** Mas. *Cal.* 4-phyll. *Cor.* 0. *Nect.* rotatum. *Stam.* 5: *Fil.* connatis.—Fem. *Cal.* 1-phyll., ligulato-subrotundus. *Cor.* 0. *Styli* 3. *Bacca* 1-sperma.

1. *Hernandifolia.* East Indies. *Shrub.*
2. *Pareira.* East Indies and S. America. *Per.*
3. *Capensis.* Cape. *Peren.*
4. *Fruticosa.* Cape. *Shrub.*
5. *Laurifolia.* St Thomas. *Shrub.*
6. *Convolvulacea.* East Indies. *Shrub.*
7. *Caapeba.* South America. *Peren.*
8. *Smilacina.* Carolina. *Shrub.*

1852. **HORSFIELDIA.** Mas. *Cal.* 0. *Cor.* tubulosa 3-quetra 3-fid. limbo connivente. *Fil.* commune. *Anth.* connatæ.—Fem. *Cal.* et *Cor.* maris. *Stylus* 0. *Stig.* punctum obscurum. *Drupa* 1-sperma supera.

1. *Odorata.* Ceylon and Java. *Shrub.*

1851. **MYRISTICA.** Mas. *Cal.* 0. *Cor.* campan. 3-fid. *Fil.* columnare. *Anth.* 6-10 connatæ.—Fem. *Cal.* 0. *Cor.* campan. 3-fid. decidua. *Styl.* 0. *Stig.* 2. *Drupa* nuce arillata 1-sperma.

1. *Moschata.* Moluccas. 2. *Otoba.* Mariquita.
3. *Philippensis.* Philippine Isles.
4. *Fatua.* Surinam and Tobago.
5. *Tomentosa.* Moluccas.
6. *Microcarpa.* Amboyna.
7. *Salicifolia.* Moluccas.
8. *Acuminata.* Madagascar.
9. *Madagascariensis.* Madagascar.
10. *Sebifera.* South America.

* 11. *Cimicifera.* New Holland. } Brown, *Prodr.*
* 12. *Insipida.* New Holland. } p. 400.

All shrubby.

1847. **DRYANDRA.** Mas. *Cal.* 2-phyll. *Cor.* 5-pet. *Fil.* 9 connata.—Fem. *Cal.* 2-phyll. *Cor.* 5-pet. *Caps.* lignosa 4-vel 5-cocca, loc. 1-spermis.

1. *Cordata.* Japan. *Shrub.*

1845. **BATSCHIA, or TRICHOA.** Mas. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 6 basi connata, quorum 3 sterilia.—Fem. *Cal.* et *Cor.* maris. *Germ.* 3. *Drupa* coriacea, nuce semibiloc.

1. *Racemosa.* Mariquita. *Shrub.*
2. *Spicata.* Mariquita. *Shrub.*

1856. **LATANIA.** Mas. *Spatha* polyphylla. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 15-16.—Fem. *Spatha*? *Cal.*? *Cor.*? *Pist.*? *Drupa* corticosa 3-pyrena.

1. *Rubra.* Mauritius. *Shrub.*
2. *Borbonica.* Bourbon. *Shrub.*

1848. **LOUREIRA.** Mas. *Cal.* 5-part. *Cor.* campan. 5-fid. *Stam.* 8-13 basi cohærentia.—Fem. *Cal.* et *Cor.* maris. *Caps.* dicocca 2-loc., loc. 1-spermis.

1. *Cuneifolia.* Mexico. *Shrub.*
2. *Glandulosa.* Mexico. *Shrub.*

1855. **XANTHE.** Mas. *Cal.* 5-seu 6-part. *Cor.* 5-seu 6-pet. *Fil.* columnare. *Anth.* 5, 2-lobæ in capitulum peltatum cohærentes.—Fem. *Cal.* et *Cor.* maris. *Stig.* 5-6 sessilia. *Caps.* 5-seu 6-loc polysperma.

1. *Scandens.* Guiana. *Shrub.*
2. *Parviflora.* Guiana. *Shrub.*

1850. **ADELIA.** Mas. *Cal.* 3-part. *Cor.* 0. *Stam.* plurima, basi coalita.—Fem. *Cal.* 5-part. *Cor.* 0. *Styli* 3, laceri. *Caps.* 3-cocca.

1. *Bernardia.* America. *Shrub.*
2. *Ricinella.* Jamaica. *Shrub.*
3. *Acidoton.* Jamaica. *Shrub.*

* 4? *Ovata.* North America. (*Persoon*, ii. 635.)

1849. **ALCHORNEA.** Mas. *Cal.* 3-5-phyll. *Cor.* 0. *Stam.* 8 basi connata.—Fem. *Cal.* 5-dent. *Cor.* 0. *Caps.* dicocca.

1. *Latifolia.* Jamaica. *Shrub.*

1853. **NEPENTHES.** Mas. *Cal.* 4-part. patens interne coloratus. *Cor.* 0. *Fil.* columnare. *Anth.* 15-17 connatæ.—Fem. *Cal.* et *Cor.* maris. *Stig.* peltatum sessile. *Caps.* 4-loc. polysperma.

Class XXII. Diœcia.

1. *Distillatoria.* Ceylon. *Peren.*
2. *Madagascariensis.* Madagascar. *Peren.*
3. *Phyllamphora.* Cochinchina. *Peren.*

‡ 1854. Ruscus. Mas. *Cal.* 6-phyll. *Cor.* 0. *Nect.* centrale, ovatum, apice perforatum.—Fem. *Cal.*, *Cor.* et *Nect.* maris. *Styl.* 1. *Bacca* 3-loc. *Sem.* 2.

1. *Aculcatus.* Brit. France, Italy, Switz. *Shr.*
2. *Hypophyllum.* Italy. *Peren.*
3. *Hypoglossum.* Hungary and Italy. *Peren.*
4. *Androgynus.* Canary Isles. *Shrub.*
5. *Racemosus.* Archipelago Isles. *Shrub.*
6. *Reticulatus.* Cape. *Shr.* 7. *Volubilis.* Cape.

Given under Diœcia *Triandria* by Smith.

Gynandria.

1857. Cluytia. Mas. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* glandulosum. *Stam.* 5 rudimento pistilli columnari inserta.—Fem. *Cal.* et *Cor.* maris. *Styli* 3. *Caps.* 3-loc. *Sem.* 1.

1. *Alaternoides.*
2. *Polygonoides.*
3. *Daphnoides.*
4. *Ericoides.*
5. *Tenuifolia.*
6. *Polifolia.*
7. *Pubescens.*
8. *Tomentosa.*
9. *Heterophylla.*
10. *Pulchella.*
11. *Lanceolata.*
12. *Acuminata.*
13. *Hirta.*
14. *Retusa.*
15. *Stipularis.*
16. *Collina.*
17. *Patula.*

All shrubby. Sp. 1—14 from the Cape. Sp. 15—17 from India.

NEW GENERA.

New Genera.

Diandria.

I. Clarisia. Mas. *Ament.* filiforme, sulco subspirali. *Cal.* squama minima.—Fem. *Perianth.* proprium 4-6-squamis peltatis. *Styli* 2, basi connati. *Drupa* 1-sperma.

1. *Racemosa.* Peru.
2. *Biflora.* Peru. } *Fl. Per. Syst.* p. 255.

Triandria.

II. Lepyrodia. *Flores* dioici v. hermaphroditi. *Perianth.* 6-glume, subæquale, exsertum, intra squamam spicæ 1-2-bracteatum. Mas. *Stam.* 3. *Anth.* simplices, peltatæ. *Rudimentum* pistilli.—Fem. *Styli* 3. *Caps.* 3-loc. 3-loba, angulis salientibus dehiscens. *Sem.* solitaria. (R. Brown, *Prodr.* 247.)

1. *Gracilis.*
2. *Stricta.*
3. *Scariosa.*
4. *Hermaphrodita.*

All from New Holland.

III. Anarthria. *Perianth.* 6-glume subæquale. Mas. *Fil.* 3, distincta. *Anth.* didymæ! utrinque 2-fidæ.—Fem. *Styli* 3. *Caps.* 3-loc. 3-loba. *Sem.* solitaria (*Id.* p. 240.)

1. *Scabra.*
2. *Lævis.*
3. *Gracilis.*
4. *Pauciflora.*
5. *Prolifera.*

All perennial, and from New Holland.

IV. Loxocarya. Mas. - - - - - Fem. solitarii bibracteati. *Perianth.* 4-glume. *Ovar.* 1-spermum. *Styl.* subulatus, indivisus. *Stig.* 1. *Follic.* cartilagineus; margine convexo dehiscens. (*Id.* p. 249.)

1. *Cinerea.* New Holland.

V. Leptocarpus. *Perianth.* 6-glume. Mas. *Stam.* 3. *Anth.* simplices, peltatæ.—Fem. *Ovar.* 1-spermum. *Stylus* 1. *Stig.* 2-3. *Utriculus* v. *Nux* crustacea, basi styli coronata. (*Id.* p. 250.)

1. *Aristatus.*
2. *Elatior.*
3. *Ramosus.*
4. *Spathaceus.*
5. *Scariosus.*
6. *Tenax.*

This genus contains also Restio *Simplex* of Willd.

VI. Chætanthus. Mas. - - - - - Fem. *Perianth.* 6-glume, nanum, glumis 3 interioribus minutissimis, setaceis. *Ovar.* 1-spermum. *Styl.* 1. *Stig.* indivisum. *Nux* 1-sperma, perianthio parum aucto cincta. (*Id.* p. 251.)

1. *Leptocarpoides.* New Holland.

VII. Hypolæna. *Perianth.* 6-glume. Mas. amentacei. *Stam.* 3. *Anth.* simplices peltatæ.—Fem. *Styl.* 2-3-part. deciduus. *Nux* ossea, calva, 1-sperma basi perianthio breviore cincta, spicam imbricatam, 1-floram, terminans. (*Id.* p. 251.)

1. *Fastigiata.* New Holl. and Van Diem. Isl.
2. *Exsulca.* New Holland, Van Diemen's Isl.

VIII. Anthobolus. *Perianth.* 3-phyll. *Cor.* 0. Mas. *Stam.* 3, basi foliolorum inserta.—Fem. *Perianth.* deciduum. *Stig.* sessile 3-lob. *Drupa* 1-sperma. *Embryo* inversus, in axi *albuminis* carnosi. (*Id.* p. 357.)

1. *Filifolius.* New Holland. *Shrub.*
2. *Triqueter.* New Holland. *Shrub.*

Tetrandria.

IX. Olmedia. Mas. *Cal.* communis squamis imbric. *Flosc.* plures. *Corollul.* 2-4-part. *Fil.* plana elastica.—Fem. *Cal.* connivens. *Cor.* ovata, 4-dentata. *Drupa* 1-sperma e coroll. carnosa formata.

1. *Aspera.* Peru. *Shrub.*
2. *Lævis.* Peru. *Shrub.* } *Fl. Per. Syst.* p. 257.

Pentandria.

X. Decostea. Mas. *Cal.* 5-dent. *Cor.* 5-pet.—Fem. *Cor.* 0. *Styli* 3. *Drupa* 1-sperma, cal. stylisque coronata.

1. *Scandens.* Chili. *Shr.* (*Fl. Per. Syst.* 259.)

XI. Ætoxicon. Mas. *Cal.* duplex: ext. globosus, int. 5-phyll. deciduus. *Cor.* 5-pet. *Nect.* squamis 5, obcordatis.—Fem. ut in mare. *Stylus* 1, 2-fid. *Drupa* 1-sperma.

1. *Punctatum.* Chili. (*Fl. Per. Syst.* 260.)

Hexandria.

XII. Morenia. Palma. *Spatha* 4-phyll. Mas. *Cal.* 3-gonus, planus. *Cor.* 2-pet. *Rudiment.* germinis.—Fem. *Germ.* 3-fid. *Stig.* 3. *Drupæ* 3, 1-spermæ.

1. *Fragrans.* Peru. *Shr.* (*Fl. Per. Syst.* 299.)

XIII. Hyphæne. Palma. *Cal.* 6-part. *Filam.* basi connata. Fem. *Cal.* sexpart. laciniis subæqualibus. *Drupa* 1-loc. *Embryo* in vertice perispermi.

1. *Cucifera.* Egypt. *Shrub.*

XIV. Xerotes, Lomandra of Labill. *Perianth.* 6-part. subcoloratum. Mas. *Perianthii* foliola interiora v. omnia basi cohærentia. *Stam.* 6, perianthio inserta. *Anth.* peltatæ. *Rudimentum* pistilli.—Fem. *Perianthii* foliola distincta, persistentia. *Stam.* cassa. *Ovar.* 3-loc. loc. 1-spermis. *Styli* 3, basi connati. *Caps.* cartilaginea, 3-loc. 3-valv.

46. *Incurvatus.* Tranquebar.
47. *Aureus.* Bourbon.
48. *Ischæmum.* Germany, France, and Italy. *Per.*
49. *Pertusus.* E. Indies and New Holland. *Per.*
* 50. *Tenuis.*
* 51. *Triticeus.*
* 52. *Sericeus.*
* 53. *Affinis.*
* 54. *Intermedius.*
* 55. *Procerus.*
* 56. *Exaltatus.*
* 57. *Lanatus.*
* 58. *Bombycinus.*
* 59. *Refractus.*
* 60. *Fragilis.*
* 61. *Citreus.*

All from New Holl. See Brown, *Prodr.* p. 200.

1867. Apluda. *Cal.* 1-valv. 3-florus, flosculus *her.* sessilis intermedius masculus et neuter pedicellati. Her. *Cal.* dupl. ext. 1-valv., int. 2-valv. *Cor.* 2-valv. *Stam.* 3. *Styl.* 2. *Sem.* 1.—Mas. *Cal.* 2-valv. 2-florus. *Cor.* 2-valv. *Stam.* 3. Neutr. rudimentum florus.

1. *Mutica.* E. Ind. 2. *Aristata.* Do. *Per.*
3. *Digitata.* East Indies.

1862. Anthistiria. *Cal.* 1-3-seu-4-valv. 3-seu-7-florus, flore *hermaph.* solitario centrali sessili, masculis duobus pedicellatis, reliquis si adsunt sessilibus. Her. *Cal.* 0. *Cor.* 2-valv. *Arista* e basi germinis. *Stam.* 3. *Styl.* 2. *Sem.* 1.—Mas. *Cal.* 0. *Cor.* 2-valv. mutica. *Stam.* 3.

1. *Ciliata.* E. Ind. *Ann.* 2. *Imberbis.* Cape.
3. *Glauca.* Barbary, Egypt, Guinea. *Peren.*
4. *Arguens.* E. Ind. *Per.* 5. *Japonica.* Japan. *Per.*
6. *Prostrata.* East Indies. *Peren.*
7. *Gigantea.* Island of Luzon. *Peren.*
* 8. *Australis.* N. Holland, &c. } Brown, *Prodr.*
* 9. *Frondosa.* N. Holland, &c. } p. 200.

‡1874. Valantia. Her. *Cal.* 0. *Cor.* 4-part. *Stam.* 4. *Styl.* 2-fid. *Sem.* 1.—Mas. *Cal.* 0. *Cor.* 3-seu-4-part. *Stam.* 3-seu-4. *Pist.* obsoletum.

1. *Muralis.* France and Italy. *Ann.*
2. *Hispida.* South of Europe. *Ann.*
3. *Filiformis.* Teneriffe. *Ann.*
4. *Pedemontana.* Piedm. Hung. and Tauria. *An.*
5. *Cucullaria.* Cappadocia and Arabia. *Ann.*
6. *Humifusa.* Cappadocia. *Peren.*
7. *Aparine.* Germ. Fra. Sicily, Teneriffe. *Ann.*
8. *Articulata.* Egypt, Syria, Barbary. *Ann.*
9. *Taurica.* Tauria. *Peren.*
10. *Chersonensis.* Tauria.
11. *Cruciata.* Eng. Germ. Switz. France. *Per.*
12. *Glabra.* Austria and Italy. *Peren.*

See Galium.

877. Planera. Her. *Cal.* campan. 4-fid. *Cor.* 0. *Stam.* 4. *Stig.* 2 sessilia recurvata. *Nux* 1-sperma coriacea squamulosa.—Mas. *Cal.* campan. 4-fid. *Cor.* 0. *Stam.* 4 exserta.

1. *Aquatica.* At rivers in Carolina. *Peren.*

879. Didymandra. *Ament.* cylindricum squamis imbric. *Flores* her. et fem. in eodem amento. Her. *Cal.* 4-part. *Cor.* 4-part. *Fil.* unicum apice biantheriferum. *Germ.* superum. *Styli* 3 brevissimi. *Bac.* 3-loc. 3-sperma. Fem. *Cal.* et *Cor.* her. *Styli* 3 brevissimi. *Bac.* 3-loc. 3-sperma.

1. *Purpurea.* Peru. *Peren.*

893. Castila. Her. *Cal.* 4-dent. *Cor.* 4-pet. *Stam.* 8. *Germ.* 4-lobum. *Styl.* 1. *Drupæ* 4, 1-spermæ.—Mas. *Cal.* 4-dent. *Cor.* 4-pet. *Stam.* 8. *Pist.* rudimentum.

Depressa. Domingo. *Per.* 2. *Erecta.* Antigua. *Per.*

887. Ophioxylon. Her. *Cal.* 5-fid. *Cor.* 5-fid. infundib. *Stam.* 5. *Pist.* 1.—Mas. *Cal.* 2-fid. *Cor.* 5-fid., infundib. ore nectario cylindrico. *Stam.* 2.

1. *Serpentinum.* Malabar, Java, Ceylon. *Per.*

1896. Coprosma. Her. *Cal.* infer. 5-dent. *Cor.* infundib. 5-6-seu-7-fid. *Stam.* 5-6-seu-7. *Styli* 2. *Bac.* globosa disperma. Mas. *Cal.*, *Cor.* et *Stam.* hermaphr.

1. *Lucida.* N. Zeal. *Per.* 2. *Fœtidissima.* Do.

1894. Celtis. Her. *Cal.* 5-part. *Cor.* 0. *Stam.* 5. *Styl.* 2. *Drupa* 1-sperma.—Mas. *Cal.* 6-part. *Cor.* 0. *Stam.* 6.

1. *Australis.* South of Europe and Africa. *Shr.*
2. *Caucasica.* Caucasus. *Shrub.*
3. *Tournefortii.* Armenia. *Shrub.*
4. *Occidentalis.* Virginia and Pennsylv. *Shr.*
5. *Crassifolia.* North America. *Shrub.*
6. *Orientalis.* East Indies. *Shrub.*
7. *Micrantha.* Jamaica. *Shrub.*
8. *Rugosa.* Porto Rico. *Shrub.*
9. *Mollis.* South America. *Shrub.*
10. *Trinervia.* St Domingo. *Shrub.*
11. *Lima.* West Indies. *Shrub.*
12. *Amboinensis.* Amboyna.
13. *Aculeata.* Jamaica and Hispaniola. *Shrub.*
14. *Rhamnoides.* New Spain. *Shrub.*
15. *Integrifolia.* Senegal. *Shrub.*

1873. Kernera. Caulinia of Decandolle, and Posidonia of Koenig. Her. *Cal.* spatha 2-valv. *Cor.* 0. *Nect.* 3-phyll. aristatum ad basin germinis. *Anth.* 6 sessiles. *Germ.* oblongum. *Styl.* brevis. *Stig.* planum. *Bac.* 1-sperma. Mas. *Cal.* *Cor.* et *Stam.* her. *Nect.* 0. *Pist.* rudimentum.

1. *Oceanica.* Mediterranean and N. Holl. *Shr.*
* 2. *Serrulata.* N. Holland.

See Brown's *Prodromus*, p. 339.

1859. Veratrum. Her. *Cal.* 0. *Cor.* 6-pet. *Stam.* 6. *Pist.* 3. *Caps.* 3, polyspermæ.—Mas. *Cal.* 0. *Cor.* 6-pet. *Stam.* 6. *Pist.* rudimentum.

1. *Album.* Russia, Siberia, Austria, Switzerland, Italy, Greece. *Peren.*
2. *Viride.* Carolina and Canada. *Peren.*
3. *Nigrum.* Hungary and Siberia. *Peren.*
4. *Parviflorum.* Carolina. *Peren.*
5. *Sabadilla.* China. *Peren.*
6. *Luteum.* Virginia and Canada. *Peren.*

1903. Rhapis. Her. *Cal.* 3-fid. *Cor.* 3-fid. *Stam.* 6. *Pist.* 1. *Drupa* 1-sperma.—Mas. *Cal.* 3-fid. *Cor.* 3-fid. *Stam.* 6.

1. *Flabelliformis.* China, Japan. *Shrub.*
2. *Acaulis.* Carolina and Georgia. *Peren.*
3. *Arundinacea.* Carolina. *Shrub.*

1905. Martinezia. Her. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 6. *Stig.* 3-part. sessile. *Drupa* 1-sperma.—Fem. *Cal.* 3-phyll. *Cor.* 3-pet. *Stig.* 3-part. sessile. *Drupa* 1-sperma.

1. *Ciliata.* Peru. *Shr.* 4. *Linearis.* Do. *Shr.*
2. *Interrupta.* Do. *Shr.* 5. *Lanceolata.* Do. *Shr.*
3. *Ensiformis.* Do. *Shr.*

1904. Ceroxylon. Her. *Cal.* 3-fid. *Cor.* 3-pet. *Stam.* 12-14. *Pist.* rudimentum.—Fem. *Cal.* et *Cor.* her. *Stam.* 0. *Styl.* 0. *Stig.* 3. *Drupa* globosa 1-sperma. *Nux* globosa basi imperforata.

1. *Andicola.* Andes. *Shrub.*

1884. Trattinnickia. Her. *Cal.* campan. 3-dent. *Cor.* campan. 3-dent. *Stam.* 5 recept. inserta. *Germ.* sup. *Styl.* subulatus.—Mas. *Cal.* *Cor.* et *Stam.* her. *Pist.* rudimentum.

1. *Rhoifolia.* Para in Brasil. *Shrub.*

1891. Gyrocarpus. Her. *Cal.* 4-phyll. inæqual. *Cor.* 0. *Nect.* 4-part. glandulosum. *Stam.* 4. *Pist.* 1. *Styl.* 0. *Samara* 1-sperma apice bialata.

101. *Ceratonia.* South America.
102. *Tamarindifolia.* Martinique, Cumana, and Caraccas.

All shrubby, except Sp. 54, 55 perennial.

1898. INGA. Her. *Cal.* 5-dent. *Cor.* tubulosa 5-dent. *Stam.* numerosa monadelpha. *Legum.* 1-loc., seminibus pulpa vel arilla involutis.—Mas. *Cal.* 5-dent. *Cor.* tubulosa 5-dent. *Stam.* numerosa monadelpha.

1. *Microphylla.* Cumana.
2. *Pungens.* S. America.
3. *Dulcis.* East Indies.
4. *Lanceolata.* N. Barcel.
5. *Unguis cati.* W. Ind.
6. *Mellifera.* Arabia Fel.
7. *Bigemina.* E. Indies.
8. *Ligustrina.* Caraccas.
9. *Hymenifolia.* N. Andalusia.
10. *Fœtida.* W. Indies.
11. *Saponaria.* Cochinch.
12. *Tergemina.* Martiniq.
13. *Caripensis.* N. Andalusia.
14. *Emarginata.* S. Amer.
15. *Coriacea.* Do.
16. *Longifolia.* Do.
17. *Vera.* Do.
18. *Spuria.* N. Andalusia, Brasil.
19. *Ingoides.* Cayenne.
20. *Sapindoides.* Caraccas.
21. *Angustifolia.* Do.
22. *Alba.* Cayenne.
23. *Quassiæfolia.* Brasil.
24. *Nitida.* Brasil.
25. *Fastuosa.* Caraccas.
26. *Velutina.* Brasil.
27. *Macrophylla.* S. Amer.
28. *Marginata.* Do. and West Indies.
29. *Nodosa.* Ceylon.
30. *Punctata.* W. Indies.
31. *Splendens.* Brasil.
32. *Coruscans.* S. Amer.
33. *Spectabilis.* America.
34. *Laurina.* St Christophers.
35. *Juglandifolia.* Carac.
36. *Fraxinea.* Brasil.
37. *Inæqualis.* Orinoco.
38. *Heterophylla.* Brasil.
39. *Cochleata.* Brasil.
40. *Latifolia.* W. Indies.
41. *Cauliflora.* Brasil.
42. *Purpurea.* Martinique.
43. *Obtusifolia.* Cumana.
44. *Fasciculata.* Brasil.
45. *Discolor.* S. Amer.
46. *Mollissima.* Do.
47. *Circinalis.* W. Indies.
48. *Cinerea.* Caraccas.
49. *Saman.* Do.
50. *Filicina.* Brasil.
51. *Pendula.* Do.
52. *Biglobosa.* Martinique.
53. *Pectinata.* S. Amer.
54. *Cyclocarpa.* Caraccas.
55. *Comosa.* Jamaica.
56. *Niopo.* S. America.
57. *Sassa.* Abyssinia.
58. *Umbellata.* Ceylon.

All shrubby.

1899. MIMOSA. Her. *Cal.* 5-dent. *Cor.* 0. seu 5-dent. *Stam.* 8. *Pist.* 1. *Loment.* in articulos 1-spermos secedens.—Mas *Cal.* 5-*dent.* *Cor.* 0. seu 5-dent. *Stam.* 8.

1. *Pistaciæfolia.* Caracc.
2. *Viva.* Jamaica.
3. *Casta.* East Indies?
4. *Debilis.* S. America.
5. *Albida.* S. America.
6. *Sensitiva.* Brasil.
7. *Strigosa.* S. Amer.
8. *Floribunda.* Caraccas.
9. *Pudica.* Brasil.
10. *Pudibunda.* Brasil.
11. *Tetrandra.* S. Amer.
12. *Polydactyla.* S. Amer.
13. *Tomentosa.* S. Amer.
14. *Hamata.* E. Indies?
15. *Latispinosa.* Madagas.
16. *Polyacantha.* Abyssin.
17. *Semispinosa.* Amer.
18. *Asperata.* Jamaica and Vera Cruz.
19. *Dormiens.* S. Amer.
20. *Somnians.* America.
21. *Palpitans.* S. Amer.
22. *Humilis.* S. Amer.
23. *Hispida.* Caraccas.
24. *Pellita.* Cumana.
25. *Canescens.* Guinea.
26. *Rubicaulis.* E. Indies.
27. *Concinna.* E. Indies.
28. *Sinuata.* Cochinchina.
29. *Microcephala.* S. Amer.
30. *Distachya.* N. Spain.
31. *Polystachya.* W. Ind.
32. *Entada.* E. Indies.

Sp. 1, 3, 5—17, 21—32, shrubby. Sp. 2, 19, 20, perennial. Sp. 4, annual.

1881. BRABEJUM. Her. *Cal. Amenti* squama. *Cor.* 4-part., superne revoluta. *Stam.* 4. *Pist.* 1 *Stig.* 2. *Drupa.* Mas. *Cal. Amenti* squamæ 3-floræ. *Cor.* 4 seu 5-part. *Stam.* 4 seu 5, fauci inserta. *Styl.* 2-fid. abortiens.

1. *Stellulifolium.* Cape of Good Hope. *Shr.*

Class XXIII. Polygamia.

1880. HERITIERA. Her. *Cal.* 5-dent. *Cor.* 0. *Anth.* 10-sessiles. 2 inter singula germina. *Germ.* 5. *Styl.* conici. *Drupæ* siccæ coriaceæ carinato-alatæ 1-spermæ.—Mas. *Cal.* 5-dent. *Cor.* 0. *Fil.* columnare. *Anth.* 5-10 minutæ in cylindrum connatæ.

1. *Littoralis.* Ceylon. *Shr.* 2. *Fomes.* Ava. *Shr.*

1889. HYPELATE. Her. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* annulus ad germen. *Stam.* 8. *Styl.* brevis. *Stig.* deflexum 3-gonum. *Drupa* pulposa 1-sperma.—Mas. *Cal. Cor. Nect.* et *Stam.* hermaphroditi.

1. *Trifoliata.* Hills of Jamaica. *Shrub.*

1878. TERMINALIA. Mas. *Cal.* 5-part. *Cor.* 0. *Stam.* 10.—Her. *Flos* masculi. *Styl.* 1. *Drupa* infera, cymbiformis.

1. *Catappa.* E. Indies.
2. *Moluccana.* Moluccas, Society Isles.
3. *Subcordata.* S. Amer.
4. *Latifolia.* Jamaica.
5. *Chebula.* E. Indies.
6. *Elliptica.* E. Indies.
7. *Mauritiana.* Mauritius. and Bourbon.
8. *Angustifolia.* E. Ind.
9. *Vernix.* Moluccas.

All shrubby.

1885. CLUSIA. Mas. *Cal.* 4 seu 6-phyll.: foliolis oppositis, imbricatis. *Cor.* 4 seu 6-pet. *Stam.* numerosa.—Fem. *Cal.* et *Cor.* ut in masculis. *Nect.* ex antheris coalitis, germen includens. *Caps.* 5-loc., 5-valv., pulpa farcta.

1. *Rosea.* Carolina.
2. *Alba.* America.
3. *Parviflora.* Isl. of Margaritha.
4. *Flava.* Jamaica.
5. *Longifolia.* Guiana.
6. *Venosa.* Martinique.
7. *Pedicellata.* N. Caledon.
8. *Sessilis.* Tongataboo.
9. *Tetrandra.* S. Amer.

All shrubby.

1897. HERMAS. Her. *Umbella* terminalis: *Involucro* universali partialibusque. *Umbellulæ* radiis truncatis: centrali florifero. *Pet.* 5. *Stam.* 5, sterilia. *Sem.* bina, cordato-orbiculata marginata utrinque compressa.—Mas. *Umbellæ* laterales involucro universali partialibusque. *Umbellulæ* multifloræ. *Pet.* 5. *Stam.* 5. fertilia.

1. *Depauperata.* Cape. *Per.*
2. *Gigantea.* Cape. *Per.*
3. *Capitata.* Cape. *Per.*
4. *Ciliata.* Cape. *Per.*
5. *Quinquedentata.* Cape. *Peren.*

‡ 1875. PARIETARIA. Her. *Cal.* 4-fid. *Cor.* 0. *Stam.* 4. *Styl.* 1. *Sem.* 1., superum elongatum.—Mas. *Cal.* 4-fid. *Cor.* 0. *Stam.* 0. *Styl.* 1. *Sem.* 1, superum elongatum.

1. *Indica.* East Indies. *Peren.*
2. *Officinalis.* Engl. and other pts. of Eur. *Per.*
3. *Punctata.* Mount Athos. *Peren.*
4. *Judaica.* Gottingen, Switz. Palestine. *Per.*
5. *Debilis.* N. Zeal.
6. *Pilosa.* Cape.
7. *Capensis.* Cape.
8. *Urticæfolia.* Bourbon.
9. *Cochinchinensis.* Cochinchina. *Peren.*
10. *Pennsylvanica.* Pennsylvania. *Ann.*
11. *Lusitanica.* Portugal, Spain. *Ann.*
12. *Cretica.* Candia and at the Caspian. *Ann.*
13. *Polygonoides.* Armenia.

‡ 1876. ATRIPLEX. Her. *Cal.* 5-phyll. *Cor.* 0. *Stam.* 5. *Styl.* 2-part. *Sem.* 1. depressum.—Fem. *Cal.* 2-phyll. *Cor.* 0. *Stam.* 0. *Styl.* 2-part. *Sem.* 1. compressum.

1. *Halimus.* Spain, Virgin. Siberia, N. Holl. *Shr.*
2. *Portulacoides.* Engl. and coasts of Eur. *Per.*
3. *Mollis.* Barbary. *Shrub.*
4. *Glauca.* France and Spain. *Shrub.*

5. *Microphylla.* Cape. *Shr.* 6. *Albicans.* Do. *Shr.*
7. *Græca.* Island of Paros. *Shrub.*
8. *Linifolia.* South America. *Shrub.*
9. *Cristata.* Cumana. *Shrub.*
10. *Muricata.* South America. *Shrub.*
11. *Rosea.* South of Europe. *Ann.*
12. *Sibirica.* Siberia. *Ann.*
13. *Tatarica.* Tartary. *Ann.*
14. *Hortensis.* Tartary. *Ann.*
15. *Nitens.* Germany, Hungary, Tartary. *Ann.*
16. *Acuminata.* Hungary. *Ann.*
17. *Veneta.* Venice. *Ann.* 18. *Albicans.* Spain.
19. *Laciniata.* Britain, Eur. and Virginia. *Ann.*
20. *Hastata.* Cold parts of Europe. *Ann.*
21. *Triangularis.* Venice. *Ann.*
22. *Obtusa.* Siberia. *Ann.*
23. *Microsperma.* Hungary. *Ann.*
24. *Patula.* Brit. and other parts of Eur. *Ann.*
25. *Angustifolia.* Engl. and other pts. of Eur. *Ann.*
26. *Erecta.* England. *Ann.*
27. *Littoralis.* England, Germ. Sweden. *Ann.*
28. *Pedunculata.* England, Denmark, Germ. *Ann.*
* 29. *Reniformis.*
* 30. *Paludosa.*
* 31. *Prostrata.*
* 32. *Pumilis.*
* 33. *Semibaccata.*

Sp. 29—33 from N. Holl. see Brown's *Prodr.* p. 400.

DIŒCIA.

1925. **PANAX.** HER. *Umbella.* *Cal.* 5-dent. superus. *Cor.* 5-pet. *Stam.* 5. *Styli* 2. *Bac.* disperma infera.—MAS. *Umbella.* *Cal.* integer. *Cor.* 5-pet. *Stam.* 5.

1. *Quinquefolium.* North America. *Peren.*
2. *Trifolium.* North America. *Peren.*
3. *Simplex.* New Zealand.
4. *Aculeatum.* China. *Shrub.*
5. *Attenuatum.* West Indies. *Shrub.*
6. *Arboreum.* New Zealand. *Shrub.*
7. *Chrysophyllum.* Trinidad, Dominica, Cayenne, Guiana. *Shrub.*
8. *Speciosum.* Caraccas. *Shrub.*
9. *Fructicosum.* Ternate Isles. *Shrub.*

1911. **DIOSPYROS.** HER. *Cal.* 4-fid. *Cor.* urceolata, 4-fida. *Stam.* 8. *Styl.* 4-fid. *Bac.* 8-sperma. —MAS. *Cal.* *Cor.* *Stam.* hermaphroditi.

1. *Lotus.* France, Italy, Barbary.
2. *Virginiana.* North America.
3. *Digyna.* Celebes.
4. *Sylvatica.* E. Ind.
5. *Discolor.* Philippines.
6. *Reticulata.* Mauritius.
7. *Ebenaster.* Calcutta.
8. *Melanoxylon.* E. Ind.
9. *Ebenum.* Ceylon.
10. *Montana.* E. Ind.
11. *Orixensis.* E. Ind.
12. *Kaki.* Japan.
13. *Hirsuta.* Ceylon.
14. *Chloroxylon.* E. Ind.
15. *Cordifolia.* E. Ind.
16. *Obovata.* St Domingo, Jamaica.
17. *Obtusifolia.* S. Amer.
18. *Salicifolia.* Do.
* 19. *Leucomelas.*
* 20. *Chrysophyllos.*
* 21. *Nodosa.*
* 22. *Angulata.*
* 23. *Decandra.* Cochinchina.
* 24. *Lobata.* Cochinchina.
* 25. *Dodecandra.* Cochinchina.

} Loureiro, *Cochinch.* p. 279.

* 26. *Lycioides.* Cape. (Desf. *Ann. Mus.*)
* 27. *Pubescens.* (Persoon, *Synop.* ii. p. 625.)
* 28. *Rugosula.* N. Holl. (Brown, *Prodr.* p. 525.)

Sp. 1—18 shrubby. Sp. 19—22, see Poir. *Enc. Bot.* v. 431.

1928. **CHRYSITRIX.** HER. *Gluma* 2-valv. *Cor.* ex paleis numerosis, setaceis. *Stam.* multa, intra singulas paleas singula. *Pist.* 1.—MAS. ut in her. *Pist.* 0.

1. *Capensis.* Cape of Good Hope. *Peren.*

1929. **SPINIFEX.** HER. *Involucr.* 2-phyll. *Cal.* 2-valv. uniflorus. *Cor.* 2-valv. *Stam.* 3. *Pist.* 1. *Stig.* 2. *Sem.* 1.—MAS. *Involucr.* 2-phyll. *Cal.* 2-valv. 2-florus. *Cor.* 2-valv. *Stam.* 3.

1. *Squarrosus.* East Indies. *Peren.*
* 2. *Longifolius.*
* 3. *Fragilis.*
* 4. *Sericeus.*
* 5. *Hirsutus.*

Sp. 2—5 from N. Holl. See Brown, *Prodr.* p. 198.

1934. **ELEPHANTUSIA.** HER. *Cal.* 0. *Cor.* 0. *Stam.* numerosa. *Styl.* 5 seu 6-fid. *Drupæ* plures 1-spermæ.—MAS. *Cal.* 0. *Cor.* 0. *Stam.* numerosa confertissima.

1. *Macrocarpa.* Peru. *Shr.* 2. *Microcarpa.* Peru. *Per.*

1932. **NUNNEZIA.** HER. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 6. *Stig.* 3-fid.—FEM. *Cal.* 3-phyll. *Cor.* 3-pet. *Stig.* 3-fid. *Drupa* 1-sperma.

1. *Fragrans.* Peru. *Shrub.*

1933. **CHAMÆROPS.** HER. *Cal.* 3-part. *Cor.* 3-pet. *Stam.* 6. *Pist.* 3. *Drupæ* 3, 1-spermæ.—MAS. *Cal.* 3-part. *Cor.* 3-pet. *Stam.* 6.

1. *Humilis.* Italy, Nice, Spain, Barbary. *Shr.*
2. *Serrulata.* Georgia and Florida. *Shrub.*
3. *Palmetto.* Carolina and Florida. *Shrub.*
4. *Cochinchinensis.* Cochinchina. *Shrub.*

1921. **PENNANTIA.** HER. *Cal.* 0. *Cor.* 5-pet. *Stam.* 5, longitudine petalorum. *Styl.* 0. *Pericarp.* 3-quetrum 2-loc. dispermum.—MAS. *Cal.* et *Cor.* her. *Stam.* 5, petalis longiora.

1. *Corymbosa.* New Zealand. *Shrub.*

1916. **STILBE.** HER. *Cal.* ext. 3-phyll.; int. 5-dent, cartilagineus. *Cor.* infundib. 5-fid. *Stam.* 4. *Sem.* 1, calyce interiore calyptratum.—MAS. similis. *Cal.* interior 0. *Fructus* 0. (In distincta planta sexus.)

1. *Pinastra.* Cape. *Shr.* 2. *Cernua.* Cape. *Shr.*
3. *Ericoides.* Cape. *Shrub.*

1912. **NYSSA.** HER. *Cal.* 5-part. *Cor.* 0. *Stam.* 5. *Pist.* 1. *Drupa* infera.—MAS. *Cal.* 5-part. *Cor.* 0. *Stam.* 10.

1. *Villosa.* From New England to Carolina. *Shr.*
2. *Biflora.* Virginia and Carolina. *Shrub.*
3. *Candicans.* N. Amer. at the R. Ogechee. *Shr.*
4. *Tomentosa.* At the R. St Mary, and Florida. *Shr.*
5. *Denticulata.* Carolina. *Shrub.*

1913. **HAMILTONIA.** HER. *Cal.* 5-fid. *Cor.* 0. *Nect.* discus 5-dent. *Stam.* 5. *Pist.* 1. *Drupa* infera. —MAS. *Cal.* 5-fid. *Cor.* 0. *Nect.* discus 5-dent. *Stam.* 5.

1. *Oleifera.* Virginia and Carolina. *Shrub.*

1915. **LAUROPHYLLUS.** HER. *Cal.* 4-phyll. *Cor.* 0. *Stam.* 4. *Germ.* superum. *Styl.* 1.—MAS. *Cal.* 4 phyll. *Cor.* 0. *Stam.* 4.

1. *Capensis.* Cape of Good Hope. *Shrub.*

‡ 1908. **FRAXINUS.** HER. *Cal.* 0 seu 4-part. *Cor.* 0 seu 4-pet. *Stam.* 2. *Pist.* 1. *Samara* 1-sperma, ala lanceolata terminata.—FEM. *Cal.* 0 seu 4-part. *Cor.* 0 seu 4-pet. *Pist.* 1. *Samara* 1-sperma, ala lanceolata terminata.

1. *Simplicifolia.* 2. *Excelsior.* Europe.
3. *Sambucifolia.* Canada and Pennsylvania.
4. *Angustifolia.* Spain and Portugal.
5. *Oxycarpa.* Mount Caucasus.
6. *Parvifolia.* The East?
7. *Lentiscifolia.* Aleppo.
8. *Quadrangulata.* Kentucky and Tenassee.

Class XXIII. Polygamia.

9. *Epiptera*. Virginia and Carolina.
10. *Americana*. Do.
11. *Caroliniana*. Carol.
12. *Platycarpa*. Do.
13. *Pubescens*. Penns.
14. *Juglandifolia*. North America.
15. *Ornus*. South of Europe.
16. *Rotundifolia*. Italy, Hungary, and the East.
All shrubby.

1922. Richeria. Her. *Cal.* 4 seu 5-fid. *Cor.* 4 seu 5-pet. *Nect. glandulæ* 4, seu 5 ad basin germinis. *Stam.* 4, seu 5. *Styl.* 0.—Fem. *Cal.* et *Cor.* her. *Nect.* margo basin germinis cingens. *Styl.* brevissimus. *Stig.* 3 revoluta. *Caps.* corticata 3-loc. 6-valv. 3-sperma basi dehiscens.

1. *Grandis*. Montserrat. *Shrub.*

1914. Isquierda. Her. *Cal.* 4-dent. *Cor.* 4-pet. *Stam.* 4. *Styl.* 0. *Drupa*? 1 sperma.—Mas. *Cal.* 4-dent. *Cor.* 4-pet. *Stam.* 4. *Pist.* rudimentum.

1. *Aggregata*. Groves of Peru. *Shrub.*

1919. Bursera. Her. *Cal.* 3, 4, 5-dent. *Cor.* 3, 4, 5-pet. *Stam.* 6, 8, 10. *Stig.* sessile 3-lobum. *Caps.* 1-loc. 3-valv. 1-sperma. *Sem.* arillatum.—Mas. *Cal. Cor.* et *Stam.* her.

1. *Gummifera*. W. Ind.
2. *Acuminata*. Caraccas.
3. *Paniculata*. Mauritius.
4. *Obtusifolia*. Mauritius.
All shrubby.

1927. Griselinia. Her. *Cal.* 5-dent. *Cor.* 5-pet. *Stam.* 5. *Styli.* 3. *Sem.* 1, inferum?—Mas. *Cal.* 5-dent. *Cor.* 5-pet. *Stam.* 5.

1. *Lucida*. New Zealand. *Shrub.*

1909. Hydnocarpus. Her. *Cal.* 5-phyll. *Cor.* 5-pet. *Nect.* squamæ 5. *Stam.* 5. *Pist.* 1.—Fem. *Cal. Cor.* et *Nect.* hermaphroditi. *Styl.* 0. *Bac.* 1-loc. polysperma.

1. *Inebrians*. Ceylon. *Shrub.*

1917. Arctopus. Mas. *Umbella* composita. *Involucra* 5-phyll. *Cor.* 5-pet. *Stam.* 5. *Pist.* 2, abortientia. Androg. *Umbella* simplex. *Involucr.* 4-part. spinosum, maximum, continens flosculos masculos in disco plurimos. Femineos 4, in radio.—Mas. *Pet.* 5. *Stam.* 5.—Fem. *Pet.* 5. *Styl.* 2. *Sem.* 2, infera.

1. *Echinatus*. Cape of Good Hope. *Peren.*

1907. Gleditschia. Her. *Cal.* 4-fid. *Cor.* 4-pet. *Stam.* 6. *Pist.* 1. *Legumen.*—Mas. *Cal.* 3-phyll. *Cor.* 3-pet. *Stam.* 6.—Fem. *Cal.* 5-phyll. *Cor.* 5-pet. *Pist.* 1. *Legum.*

1. *Triacanthos*. North America. *Shrub.*
2. *Monosperma*. Do. *Shr.* 3. *Horrida*. China. *Shr.*

1906. Schleichera. Her. *Cal.* 6-fid. *Cor.* 0. *Stam.* 8. *Pist.* 1. *Drupa* 1-sperma.—Mas. *Cal.* 6-fid. *Cor.* 0. *Stam.* 0.

1. *Trijuga*. Ceylon. *Shrub.*

1910. Brosimum. Her. *Ament.* globosum apice pistillo solitario instructum. *Cal.* squama. *Cor.* 0. *Anth.* peltatæ solitariæ. *Styl.* 2-fid.—Mas. *Cal.* 0. *Cor.* 0. *Germen* imbricato-squamosum. *Styl.* 2-fid. *Bacca* corticosa 1-sperma.

1. *Alicastrum*. Jamaica. *Shrub.*
2. *Spurium*. Jamaica. *Shrub.*

Persoon thinks that No. 2. is a species of Stillingia or Sapium.

1918. Caballeria. Her. *Cal.* 5-fid. *Cor.* rotata. *Stam.* 5. *Stig.* 5-gonum. *Drupa* 1-sperma punctata.—Mas. *Cal. Cor.* et *Stam.* hermaphroditi.

1. *Latifolia*.
2. *Pellucida*.
3. *Ferruginea*.
4. *Oblonga*.
5. *Dependens*.
6. *Dentata*.
7. *Venosissima*.
All from Peru, and shrubby.

1920. Lardizabala. Her. *Cal.* 0. *Cor.* 6-pet. 3-ext. latiora. *Nect.* 6-phyll. *Stam.* 6. *Germ.* 3-6. *Styl.* 0. *Baccæ* 3-6, 6-loc. polyspermæ.—Mas. *Cal.* 0. *Cor.* 6-pet. 3-ext. latiora. *Nect.* 6-phyll. *Fil.* columnare. *Anth.* 6, sessiles.

1. *Biternata*. Chili. *Shr.* 2. *Triternata*. Do. *Shr.*

1923. Smegmaria. Her. *Cal.* 5-fid. *Cor.* 6-pet. *Nect.* discus stelliformis. *Stam.* 10, quorum 5 nectario 5, receptaculo inserta. *Pist.* 5. *Caps.* 5, stellatæ uniloc. 2-valv. polyspermæ. *Sem.* alata.

1. *Emarginata*. Woods of Chili. *Shrub.*

1924. Kageneckia. Her. *Cal.* 5-fid. *Cor.* 6-pet. *Nect.* 0. *Stam.* 16-20 calyci inserta. *Pist.* 5. *Caps.* 5, stellatæ uniloc. superne dehiscentes polyspermæ. *Sem.* alata.—Mas. *Cal. Cor.* et *Stam.* hermaphroditi.

1. *Oblonga*. Chili. *Shr.* 2. *Lanceolata*. Peru. *Shr.*

1930. Ceratonia. Her. *Cal.* 5-part. *Cor.* 0. *Stam.* 5. *Styl.* filiformis. *Legumen* coriaceum, polyspermum. Dioica. Mas et Femina distincta.

1. *Siliqua*. Italy, Candia, Cyprus, Syria, and the East. *Shrub.*

1931. Ficus. *Recept.* commune turbinatum, carnosum, connivens, occultans flosculos vel in eodem vel distincto. Mas. *Cal.* 3-part. *Cor.* 0. *Stam.* 3.—Fem. *Cal.* 5-part. *Cor.* 0. *Pist.* 1. *Sem.* 1 calyce persistenti clauso subcarnoso tectum.

1. *Carica*. South of Europe and Asia.
2. *Palmata*. Arab. Fel.
3. *Serrata*. Arab. Fel.
4. *Simplicissima*. Cochinchina.
5. *Denticulata*. E. Ind.
6. *Truncata*. E. Ind.
7. *Aquatica*. East Ind.
8. *Sycomorus*. Egypt.
9. *Nymphaeifolia*. Caraccas.
10. *Sagittata*. East Ind.
11. *Populifolia*. Arabia Felix.
12. *Religiosa*. East Ind.
13. *Auriculata*. Cochinchina.
14. *Benghalensis*. East Indies.
15. *Tomentosa*. E. Ind.
16. *Venosa*. East Ind.
17. *Coriacea*. East Ind.
18. *Costata*. East Ind.
19. *Lucida*. East Ind.
20. *Citrifolia*. East Ind.
21. *Martinicensis*. West Indies.
22. *Infectoria*. E. Ind.
23. *Pedunculata*. South America.
24. *Cordata*. Cape.
25. *Crassinervia*. South America.
26. *Australis*. N. Holl.
27. *Stipulata*. China, Japan.
28. *Punctata*. East Ind.
29. *Trigona*. Surinam.
30. *Granatum*. Tauria.
31. *Pumila*. China, Japan.
32. *Erecta*. Japan.
33. *Populnea*. S. Amer.
34. *Velutina*. S. Amer.
35. *Turbinata*. Tanna.
36. *Tinctoria*. Soc. Isles.
37. *Septica*. Tanna.
38. *Falcata*. East Ind.
39. *Clethræfolia*. Carac.
40. *Insipida*. Caraccas.
41. *Callosa*. East Ind.
42. *Benjamina*. E. Ind.
43. *Radula*. Oronoco.
44. *Politoria*. Cochinch.
45. *Pertusa*. East Ind.
46. *Terebrata*. Jamaica.
47. *Americana*. E. Ind.
48. *Nitida*. East Ind.
49. *Indica*. East Ind.
50. *Racemosa*. East Ind.
51. *Parasitica*. E. Ind.
52. *Retusa*. East Ind.
53. *Drupacea*. East Ind.
54. *Reflexa*. East Ind.
55. *Comosa*. East Ind.
56. *Glomerata*. E. Ind.
57. *Prolixa*. Soc. Isles.
58. *Obliqua*. Namoka.
59. *Prinoides*. S. Amer.
60. *Salicifolia*. Arabia Felix.
61. *Repens*. East Ind.
62. *Cannabina*. Cochinchina.
63. *Aspera*. Tanna.
64. *Morifolia*. Bourbon.
65. *Mauritiana*. Do.
66. *Toxicaria*. Sumatra.
67. *Oppositifolia*. E. Ind.
68. *Scabra*. Guinea.
69. *Maculata*. Domingo.
70. *Ulmifolia*. Philippines.
71. *Capensis*. Cape.
72. *Reticulata*. East Ind.
73. *Sinuata*. East Ind.

Class XXIII. Polygamia.

Class XXIII. Polygam

*74. *Umbellata.* Guinea.
*75. *Polita.* Guinea.
*76. *Lutea.* Guinea.
*77. *Ovata.* Guinea.
*78. *Calyptrata.* Guinea.
*79. *Macrocarpa.* Do.
*80. *Lævigata.* W. Ind.
*81. *Cotoneæfolia.* Indies.
*82. *Macrophylla.* New Holland.
*83. *Laurifolia.* South America.
*84. *Rubiginosa.* New Holland.
*85. *Excelsa.* India.
*86. *Pallida.* St Martha.
*87. *Grisea.*
*88. *Symphytifolia.* Java.
*89. *Rostrata.* Java.
*90. *Rhomboidalis.* East Indies.
*91. *Rubra.* Mauritius.
*92. *Rudis.* India and Madagascar.
*93. *Hirta.* China.

Sp. 1—73 shrubby.

For an account of these new species, see Vahl's *Enumeratio Plantarum*, vol. ii. p. 201.

NEW GENERA:

New Genera.

New Genera.

MONŒCIA.

I. THAUREA. *Glumæ* 2-floræ 1-valves, in rachi dilatata spicatæ, 1-laterales, infimæ androgynæ, reliquæ masculæ. *Perianth.* (androgynæ) *ext.* hermaphroditum; *int.* masculum, valvula exteriore glumæformi. *Squamulæ* 2-hypogynæ. *Stam.* 3. *Styli* 2. *Stig.* plumosa. *Semen* perianthio inclusum, et rachi indurata involuta clausa tectum! (*Thuars*, and R. Brown's *Prodr.* p. 197.)

1. *Latifolia.* N. Holl. 2. *Media.* N. Holl.
3. *Sarmentosa.* Madagascar.

II. POTAMOPHILA. *Flores* polygami sæpius monoici. *Hermaphrodito-Masculi.* superiores. *Fem.* cum rudimentis staminum, stigmatibus majoribus: utriusque *gluma* 1-flora, 2-valvis, minima. *Perianth.* 2-valve, muticum, membranaceum, valvula *ext.* 5-nervi, *int.* 3-nervi. *Squamulæ* 2. hypogynæ. *Stam.* 6. *Styl.* 2. *Stig.* plumosa. (*Id.* p. 211.)

1. *Parviflora.* New South Wales.

III. SEAFORTHIA. *Perianth.* duplex, utrumque 3-part. HER. MAS. *Stam.* numerosa. *Ovar.* 1-spermum. *Styl.* 1. *Stig.* obtusum.—FEM. solitarii inter duos hermaphrodito masculos. *Stam.* 0. *Ovar.* 1-spermum! *Styl.* 0. *Stig.* 3, obtusa. *Bac.* ovalis. *Sem.* striatum. *Albumen* ruminatum. *Embryo* basilaris. (*Id.* p. 267.)

1. *Elegans.* New Holland.

IV. DYSPHANIA. HER. *Perianth.* 3-part., coloratum, foliolis cochleariformibus. *Stam.* 2, distincta, imo perianthio inserta. *Styl.* indivisus. *Stig.* simplex. —FEM. *Perianth.* et *Pist.* ut in herm. *Pericarp.* turbinatum semini adnatum, perianthio aucto cinctum. *Sem.* albuminosum; *Embryone* peripherico, *Radicula* supera. (*Id.* p. 411.)

1. *Littoralis.* New Holland.

DIŒCIA.

V. ASTELIA. HER. MAS. *Perianth.* 6-part. semiglumaceum. *Stam.* 6, imo perianthio inserta. *Pist.* imperfectum. HER. FEM. *Perianth.* ut in masculo, persistens. *Stam.* imperfecta. *Ovar.* 3-loc.; v. 1-loc. placentis 3 parietalibus: polyspermum. *Styl.* 0. *Stig.* 3, obtusa. *Bac.* 1-3-loc., polysperma. (*Id.* p. 291.)

1. *Alpina.* Van Diemen's Island.

VI. CARGILLIA. *Cal.* semi 4-fid. *Cor.* limbo 4-fid. MAS. *Stam.* basi cor. inserta (nunc hypogyna?) ejusdem laciniis dupla. *Fil.* duplicata. *Rudimentum* pistilli. HER. FEM. *Stam.* effœta, pauciora. *Ovar.* 4-loc. loculis 2-spermis. *Bac.* globosa calyce appressa cupulæformi infra cincta. (*Id.* p. 526.)

1. *Laxa.* New Holland.
2. *Australis.* New South Wales.

VII. MYRSINE. *Cor.* 5. raro 4-fid. *Anth.* subsessiles. *Ovar.* ovulis definitis (4-5). *Stig.* sæpius lobatum v. laciniatum. *Drupa* pisiformis, putamine crustaceo, 1-spermo. (*Id.* p. 535.)

1. *Variabilis.* New South Wales. *Shrub.*
2. *Crassifolia.* New Holland. *Shrub.*
3. *Urceolata.* New Holland. *Shrub.*

See p. 143. This genus, as reformed by Mr Brown, contains several species already given under other genera. See particularly his *Prodromus*, p. 535.

REMARKS ON THE CLASS POLYGAMIA.

The following plants might be expected in this class; but they belong to natural genera, the species of which ought not to be separated, and which fall under other classes.

MONŒCIA.

Æsculus. Mammea. Euphorbia. Melothria. Ilex. Guilandina. Moringa. Silene. Saxifraga. Cleome *polygama*.

CLASS XXIV. CRYPTOGAMIA.

Class XXIV. Cryptogamia.

The great length to which this article has already extended, would have obliged us, in treating this class, to give merely the essential characters of the numerous genera of which it is composed, and to enumerate a few of the most interesting species. From the great number of new genera, however, which have been recently added to this class, and from the impossibility of procuring at present the foreign works in which they are contained, this list of essential characters would have been so extremely imperfect, as to have rendered it absolutely necessary to resume the subject in some future article. Under these circumstances, we have thought it preferable to refer this part of the Linnæan System to the article Cryptogamia; and in doing this, we seem to be sanctioned by the example of the two latest and most celebrated systematic botanists, Willdenow and Persoon, who have published the first twenty-three classes of the system, and have not entered on the class Cryptogamia.

REMARKS ON THE CLASSIFICATION.

Remarks on the Classification.

In the preceding Classification, we have adopted, as the foundation of the article, the *Species Plantarum* of Willdenow, and have added at the end of each genus, with the mark *, the new species that have been recently discovered, and at the end of each class the new genera, or those which have been established or reformed by the latest writers on botany. Such of our readers as are at all acquainted with the immense variety of works from which these new genera and species must be obtained,—with the difficulty of distinguishing species which are frequently given under different names,—and with the mere mechanical labour of abridging and condensing the materials which are thus collected, will, we trust, be able to appreciate the enormous labour which has been bestowed on this part of the article. To those general readers who may think this article too long, we have only to say, that, in a rival Encyclopædia, the classification occupies nearly as much space, though it does not contain any of the new genera and species, and though, by a most singular mistake, the factitious generic characters of the last 22 classes are given instead of the essential characters. In another Encyclopædia, the article Botany, written by one of the first botanists of the age, and dispersed through the work, will occupy more than ten times the space which it does in the preceding article.

N. B. The mark ‡ before the genera, indicates that some of the species are natives of Great Britain. *Shrub.* or *Shr.* denotes that the species to which it is prefixed are *shrubby*, that is, are either *shrubs* or *trees*. *Ann.* or *An.* signifies *annual*. *Bien.*, *biennial*. And *Peren.* or *Per.*, *perennial*.

END OF THE CLASSIFICATION.

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END OF BOTANY

BOTANY BAY,

Botany Bay.

Situation and name.

A capacious bay on the south-east coast of New Holland, in 34° S. Lat. 208° 37′ W. Long. discovered by Captain Cook in 1770, and so named by him, from the great variety and abundance of plants found in its vicinity. *Botany Bay*, however, is now used to denote in general a British settlement, since established in the same part of New Holland, extending over a wide tract of country, and daily enlarging.

Climate and natural history.

The climate of Botany Bay is one of the most temperate and agreeable in the world, the soil is fertile, and luxuriant crops reward the labours of the agriculturist. Trees of immense size grow in the forests, fit for all the purposes of ship-building or domestic economy, and the fruits of Europe and Asia, as well as the animals now naturalised there, are equally rich and productive as in their native climes. But the indigenous quadrupeds are few, none of any note frequenting the neighbourhood, except the kangaroo, a singular animal, peculiar to the continent of New Holland and its adjacent islands. There are many birds of beautiful plumage, and numerous fishes are found in the adjacent seas.

Natives.

The natives of no country hitherto discovered, are in a state so rude and savage as those of Botany Bay: and there seems also some difference in their personal conformation. Most of them are nearly as black as negroes, others of a copper colour: their heads are uncommonly long, and their extremities slender. Those who dwell in the woods exclusively, are said to have longer legs and arms than the rest, which is a fact well deserving of investigation. Their teeth are white and even, their noses flat, though their hair is not woolly like that of the African tribes; they have wide nostrils, sunk eyes, and bushy eyebrows. The countenances of the men, and particularly those of the women, notwithstanding their disfiguration, are far from being disagreeable.

Dwellings.

Permanent dwellings are unknown to the natives in their migratory lives; an overhanging crag, or the recesses of a cavern, serves them for shelter from the inclemency of the weather; the woodman is protected by the bark of a tree bent in the middle, while its two ends are stuck in the earth: and some, more stationary, take up their abode in miserable huts, formed principally of the same substance. There they repose, men, women, and children indiscriminately; and the time of sleep, which is very profound, is frequently taken for the moment of assassination.

Food.

Food is precarious; the scarcity of quadrupeds renders a kind of traps and snares, constructed by them, rarely successful; birds are generally beyond their reach, and hence, in addition to fruits, their chief support is derived from fishing. They likewise devour a kind of larva or caterpillar, which those Europeans who have ventured to taste it, describe as savoury food; and they make a sort of paste of fern root and ants bruised together, to which the eggs of those insects are added in their season.

Marriage.

A temporary alliance, resembling marriage, is known among those savages. It is, however, in the power of the husband to repudiate his wife, but her infidelity towards him is severely punished. When a man wishes to marry, he selects a woman from another tribe with which his own is at enmity; but instead of soliciting the object of his choice, he steals upon her in a place of secrecy. There she is stunned by the blows of a club on the head and shoulders, and, while the blood streams from her wounds, she is dragged away and ravished by the main force of the assailant, when beyond the danger of pursuit. The female then becomes a wife, and is incorporated into the tribe of her husband. No feuds follow such horrible outrages: the only retaliation by the woman's tribe being a similar violence, when wives are required by their men. Polygamy is practised, and chastity is held in no esteem.

The names bestowed on children are commonly those of a beast, a bird, or a fish, such as that of the kangaroo or some other animal. Between eight and sixteen, the septum of the nose is perforated to receive a reed or bone, which is thought a great ornament: but the most important ceremony, though the real object of it is yet undiscovered, consists in knocking out a front tooth of the youths who are about to attain the age and privileges of manhood. Much preparation is previously made: the youths, in the first place, who are to undergo the operation, are selected, and, when collected together, they must sleep on a certain spot, and in a certain posture. A number of young savages wearing girdles, with wooden swords stuck into them behind, and recurving on the back, somewhat like the tail of a dog, run upon their hands and feet around the youths, and every time, on passing, throw up the sand and dust upon them. By this part of the ceremony, the qualities of the dog are supposed to be imparted. Other motions imitating those of the kangaroo, and one of these animals made of grass, deposited at the feet of the youths, is supposed to give them the power of hunting and killing it. After various mummeries, quite unintelligible to Europeans, an operator dexterously strikes out the front tooth from each of the youths, among whom it is a point of honour not to utter the smallest complaint. But even though they did, their cries would be drowned amid the uninterrupted noise which prevails among the actors in this barbarous scene. The operation being finished, the youths are all ranged on the long trunk of a tree, whence, on a signal given, they suddenly start up, and rushing forward, drive men, women, and children before them, and also set fire to the grass whereever they pass. They are then received into the class of men, and are privileged to use weapons and carry off females for wives. The tooth thus extracted, is the object of certain superstitions hitherto ill understood, and sometimes hung round the neck of the women: to part with them to strangers has been supposed offensive to the natives.

It appears that the death of every individual, without exception, must be followed by the shedding of blood; nor is it evident that, in this respect, any difference is made between intentional and accidental death. In the infliction of injury, the *lex talionis* is observed with punctilious nicety, and precisely to the same extent is the injury returned. There does not seem any necessity that enmity shall subsist between the victim who thus suffers, after the death of an individual, and him who draws his blood: it rather appears an indispensible ceremony, and the sufferer may be afterwards cherished and protected by his assailant. Whoever sheds blood, must submit to expose himself to have spears thrown at him, but he is entitled to employ a shield in his defence, and to practise all possible agility in avoiding them. Nevertheless, persons in this predicament are often unsuccessful, and dangerous wounds ensue.

So far as can be collected, the aborigines of Botany Bay are utter strangers to religion, and no belief of a Supreme Being prevails among them. Indistinct gesticulations, indeed, have prompted some Europeans to suppose the reverse, and also that they entertained vague ideas of a relation between the heavens and a person deceased; but it is not clearly known that any thing like the belief of a future state has hitherto engrossed their reflection. Perhaps our knowledge of their language and customs is still too imperfect to decide on the fact; yet there is reason to conclude, that mankind must have made a certain progress from barbarism, before religious sentiments occupy their minds. Nevertheless, superstition is extremely prevalent among the rude and uncultivated savages of Botany Bay; they believe in spirits, and are averse to pass a grave. In the disposal of their dead a remarkable variety is observed, according to the state of the departed person. The young are deposited in the earth, while the bodies of those who have passed the middle age are reduced to ashes; and on both these occasions many ceremonies are practised. A husband has been seen to raise a funeral pile to his wife; first the ground was excavated some inches deep, and the cavity covered with sticks and brush-wood three feet high; then a sufficient quantity of wood having been procured, grass was spread over the whole, and the corpse, borne by men, placed on it, with the head northward. The fishing apparatus, and other little articles belonging to the deceased, were put in a basket by her side; and the husband having laid some large logs over the body, one kindled the pile, which soon blazed into a flame. On the following day, the husband raked together the ashes of his wife, and formed a small tumulus, with scrupulous attention to its shape and neatness; after which he placed a log of wood on each side, and deposited on the top the piece of bark with which he had accomplished its construction. His work being finished, this untutored savage stood, with folded arms, intently gazing on what the natural affections of man told him contained the only remains of what he had once held in love and estimation. But the disposal of the dead by the natives is not always equally simple: the surviving infant is buried alive with its departed mother, a custom which scarce exists in all the world besides: the father himself lays it in the grave, and is the first to heap the earth upon his trembling child.

Botany Bay.

History of the settlement.

It is not preserved in geographical records, that any navigator preceding Captain Cook had visited Botany Bay; nor was it then supposed that it would be a place of much importance to Britain. The separation of the American colonies, however, whither criminals from this island were wont to be transported, rendered it necessary to select some other distant region for the same purpose. After an interval of several years, Botany Bay was condescended on by government: and the advantages of a fertile country, a salubrious climate, and a safe and capacious harbour for shipping, counterbalanced the inconveniences attendant on the length of time which voyages would necessarily occupy.

1787.

Ample preparations were therefore made for establishing a settlement at Botany Bay, which might reach to an unlimited extent. Stores, utensils, and the materials essential in founding a town, were collected together; and an entire hospital was constructed in England, portable, because the pieces might be disjoined, and requiring nothing more than simple union on attaining the place of destination. A fleet of eleven vessels, containing 760 male and female convicts, banished for crimes of every description, sailed from Portsmouth in May 1787, and in eight months cast anchor in Botany Bay, without any intervening accident. In the course of the voyage, a design, which has been since frequently renewed, was harboured by the convicts for taking the vessels, but it was discovered in good time, and the ringleaders punished.

1788.

Though all was ready for debarkation, and for founding the projected colony, it appeared, on more minute examination of the bay, that no part of it was free of objections. On one side, the shipping would be too much exposed to the violence of easterly winds, and its immediate environs were, in many places, too marshy for cultivation. It was therefore resolved to establish the settlement at Port Jackson, five miles distant, one of the finest harbours in the universe, stretching thirteen miles inland, provided with numerous creeks, and sufficiently capacious for a thousand ships of the line. Here, therefore, the whole individuals composing the colony, amounting to 1030, were landed. A town called Sydney was founded in a favourable situation at the base of two hills, and with a rivulet running through its center: rapid progress was made in the houses and public works; and soon after another town called by the same name that the natives give its site, Paramatta, was also built.

The colony established at Port Jackson.

In the next place, different small settlements were portioned out for private persons, as well as for the use of government, the ground cleared, land enclosed, and crops sown. A quantity of live stock was introduced into the colony, and preserved with the utmost care, for the purpose of supplying future wants; and the whole began, in a time wonderfully short, to exhibit a pleasing picture of industry and activity.

But the successes of the colony were far from being uninterrupted. Notwithstanding the laudable exertions of government, and the fruitful returns of agricultural occupations, many vexations arose from the conduct of the colonists. Accustomed to an idle and dissolute life, and familiarized with wickedness, they in general shewed an aversion to labour; and by the commission of new crimes, interrupted the peace of the settlement. Sometimes, also, the government stores were likely to fail, or were wantonly and wickedly destroyed, and supplies from the mother country were so precarious, that oftener than once the whole colony was threatened with the miseries of famine.

The difficulties which an infant colony must experience can easily be conceived; and the history of Botany Bay is so much the more interesting, because its state can be traced from day to day, during its whole existence, and affords a useful example of the progress of a settlement labouring under innumerable disadvantages. Some of the colonists at length declared themselves able to subsist without the aid of government stores, and many convicts, reclaimed to a virtuous life, willingly lent their assistance towards the general welfare. According as the numbers augmented, the territory was extended; houses were built far in the interior of the continent; a spirit for traffic commenced, which was encouraged by the arrival of vessels belonging to all nations; and manufactures were even established. Cattle imported from Britain, or the southern climates, which had run wild in the woods, proved wonderfully prolific; and the rapid increase of sheep had, after the lapse of a few years, produced more wool than was sufficient to clothe the whole inhabitants of Botany Bay.

1800. The pernicious use of spirits, which over all the civilized parts of the globe may truly be denominated the bane of virtue, was equally prejudicial here; and the governor in 1800 judiciously imposed a tax upon them, to defray the expence of a new stone prison at Paramatta. A remarkably strong building of wood, devoted to that purpose, had recently before been maliciously set on fire, and the convicts were with great difficulty rescued from the flames. In September of the same year, the Irish criminals, transported for sedition at home, were not idle in the settlement, which rendered the utmost precautions necessary for internal safety, and volunteer associations were established.

1801. In 1801, the live stock of the colony had surprisingly augmented, there being nearly 7000 sheep, and 5000 hogs, besides horses, cattle, and goats; and above 11,000 acres of land were under cultivation with wheat and maize. The live stock and cultivated grounds have ever since gradually increased in more than an equal proportion; and at this day, the colony is visited by vessels from all foreign ports, for the purpose of procuring refreshments. At the same time also shipbuilding had begun, and the plantations on distant islands, forming so many branches of the settlement, were in a flourishing condition.

During this spirit of improvement, an extensive garden was formed, wherein not only many useful plants indigenous to the climate were cultivated, but many brought from remote countries to be naturalized, under the superintendance of skilful persons appointed by government. From thence, numerous rare and curious vegetable productions have been transmitted to the mother country.

1802. The French expedition of discovery visited the colony in the year 1802; and from the naturalists and officers who composed it, there has proceeded a more interesting account than any, excepting one, in our own language. Even then the settlement had made such rapid progress, as to impress the French with astonishment. Batteries were erected for its defence; public buildings for the troops and government, schools, prisons, and hospitals. Port Jackson had become familiar to the American nation, and expeditions for the purposes of traffic were carried on to China, and the channel which separates Asia from America. The utmost activity prevailed, and the manufactures of different kinds had increased to a very considerable extent. Roads were made through the center of immense forests for facilitating the carriage by land, and docks on the shore for the use of repairing the shipping. A great revolution had been effected in the morals of the people; many of the most notorious criminals now gained an honest livelihood, and the most abandoned women made reputable wives, and tender mothers. The commission of crimes had greatly diminished, and the strangers naturalising in the woods wandered about in safety, and were hospitably entertained in the distant cottages. To guard the children of those parents that still remained dissolute from their contagious example, they were removed to schools under the protection of government, and educated in the principles of virtue and industry. On the whole, the French exhibit a flattering picture of the improvement and growing importance of the colony; and their accounts are more worthy of credit, as proceeding from persons entirely unbiassed.

The harmony of the settlement was interrupted by 1808. a violent, though perhaps prudent and necessary measure, in the deposition of governor Bligh in 1808, by an officer of inferior rank. The immoderate use of spirits at that time led to serious consequences, and the officer who seized on the person of the governor, judged it necessary both for his safety in securing him from popular resentment, and for promoting the peace of the settlement. Nevertheless on being brought to a court martial of recent date, the act of insubordination was considered paramount to the urgency of the case, and such as could not admit of extenuation.

The flooding of the rivers which traverse the set- 1809. tlement, occasioned extensive devastations during 1809, a calamity which had sometimes before been experienced. The neighbouring crops were entirely destroyed, and great numbers of sheep and cattle washed away. The magnitude of the losses by this event, induced the governor to issue a proclamation, prohibiting live stock to be slaughtered for a limited time. But in 1810 the colony was rapidly recover- 1810. ing from the damage, and carrying on a spirited traffic with distant countries, and the surrounding islands. From the Fejee islands alone, 40,000 seal skins had been obtained, which in England are worth £60,000, and other branches of commerce were equally promising.

The prosperity of Botany Bay is daily increasing: 1811. the spirit for adventure is as strongly implanted in the colonists as in the mother country: new manufactories are founded; and the territory brought under agriculture continually enlarging. Fortunes have even been realized by convicts reclaimed to industry, which would be deemed considerable in England. We are aware, that the use of this colony to Britain has been challenged, and that some have gone so far as to recommend its being abandoned. But we entertain many doubts whether such a measure would be expedient, and it will be well to pause deliberately on the consequence, before deciding on what is of such importance to the community both at home and abroad. Attempts to found other settlements, under the most favourable circumstances, have failed; and the success of Botany Bay must, in a very great degree, be ascribed to the vigour and intelligence of the governors, to whom its management has successively been confided. Extreme difficulty also must ever attend the proper choice of a situation for a similar purpose; and although both the expence of the colony to Great Britain, and the length of the voyage, are objections to our preserving it. Whether any place could be selected nearer our own island; and whether it would, in a longer space of time, make equal progress, are points which may reasonably be called in question. See Phillip's *Voyage to Botany Bay*. Hunter's *Voyage*. Peron *Voyage*. Collins' *Account of Botany Bay*. (*c*)

BOTARGO, the name given to a kind of sausage, made of the milts and roes of the mullet fish, and much used in the southern parts of Europe. See Ray's *Travels*, p. 396. (*j*)

BOTHNIA, a division of Sweden, is separated into *east* and *west* by a gulf of that name. It is bounded on the north and west by Swedish Lapland, on the east by Russia, and on the south by Sweden Proper and Finland. Were we disposed to dwell on the *curiosa* of etymology, we might derive this word from the Latin term *Bothnia*, used by Galen to denote the roots or fangs of the teeth, *ossa quæ subeunt dentium foramina*, some of which bear an exact resemblance to the form of this country, as divided by the Bothnic Gulf.

Bothnia contains a vast number of lakes and rivers, with a considerable quantity of wood: its largest forests are upon the frontiers of Lapland. The pasture grounds are excellent, but the rein-deer find a sufficient subsistence on the high mountains, which yield only moss. Much of this country is level, and the soil fertile. Though the seed is put into the ground late, the corn will ripen in six, seven, or eight weeks, as it happens to lie more or less to the north. The frosts of July often prove excessively injurious.

It has a number of pleasant islands along the coast of the Bothnic Gulf, one of which, the Isle of Ado, produces black marble and touchstone.

East Bothnia is in length about 300 miles, and from 60 to 210 in breadth. A chain of mountains running along its eastern frontier, separates it from Russia and Finland Proper. This province contains three departments, under one governor. It is but very thinly inhabited, the population not exceeding 80,000 souls. It is divided also into 28 parishes, included in the bishopric of Abo, nine of which only are in the possession of Swedes, the rest are occupied by Finns. The soil (particularly in the two parishes of Stockiro and Liminga) is found remarkably fertile; but it is somewhat low and marshy towards the southern coast. Vegetation, though frequently checked and destroyed by sudden frost, has been known, at other times, to proceed with astonishing rapidity. Corn has been sown and reaped in the space of six weeks, and instances of this have been observed and recorded as far north as Uleaborg. This rapid maturity has been ascribed to the longer presence of the sun, which, to the inhabitants of Tornea, is for some weeks visible at midnight. The lakes and rivers afford abundance of salmon. There is a particular fish which the inhabitants name *muiku*, and of the roes of which they make caviar. In some of the rivers have been found pearls. Besides fishing and agriculture, the inhabitants employ themselves in grazing, hunting, and ship-building; they export cattle, butter, salmon, stroming, and other fish; skins and fat of the sea-dog, pitch, tar, and whale oil. They traffic also in timber, joists, brick, chalk, and other commodities. Veins of silver are said to have been discovered in the parish of Kiemi. Other parts of this province contain granite, asbestos, mountain crystal, and alum. There is also to be found an iron ore, of a reddish brown colour, from which is prepared a sort of metallic sand. The inhabitants use the language of Finland, excepting a few Swedes upon the coast. The principal towns are Cafana Ulea, Brahestadt, Gamla-carleby, Ni-carleby, Jacobstadt, Wasa, and Christinestadt.

As much of the *western* province is still waste, and without inhabitants, its extent, as a whole, has not yet been ascertained. The inhabited part, reaching to Upper Tornea, has been estimated at 58 Swedish miles in length, and from 16 to 18 in breadth. It belongs to the see of Hernosand, has two provincial jurisdictions, and is subdivided into four inferior governments. The soil is fertile, and the country has several mines of copper and iron. The inhabitants are remarkable for sobriety, courage, and perseverance, and find their chief employment in hunting, fishing, grazing, and agriculture. They have a singular practice of using, in their bread, a mixture of chaff and pounded pine bark. This custom, though at first perhaps the result of necessity, must, in time, have become agreeable: they are known to practise it even when their crops are most abundant. Their chief articles of traffic are timber and shingles, dried pike, salted and smoked salmon, feathers, bread, cummin, pitch, tar, and train oil. They export also a great variety of skins; those of the black and blue fox, the ermine, bear, hyæna, wolf, marten, goulas, and rein-deer, the skin and fat of the sea-dog, and hats made of otters hair. Part of these, by a contraband trade, are transported to Russia and Norway: they dispose of the rest in Sweden. Umea, Pitea, Lulea, and Tornea, are the chief towns, each of them lying on the Bothnic Gulf, and seated at the mouth of a river of the same name. (*v*)

BOTHNIA, Gulf of, takes its name from a division of Sweden, and is formed by the Baltic Sea, from which it is separated by the Isles of Aland. It is bounded on the north, east, and west, by the dominions of Sweden. Its length, from north to south, is about 350 miles, and its breadth, from east to west, is from 50 to 145 miles. This gulf is often so completely frozen, as to afford a short and convenient passage from the opposite provinces; at the Isles of Aland, however, it is passable, in this way, scarcely once in ten years. Its water, in common with the rest of the Baltic, possesses a peculiar degree of freshness, and contains only one third the proportion of salt that is found in other sea water: this phenomenon has been imputed to the quantity of ice. Acerbi has thrown out a conjecture, that the harbours of Tornea and Uleaborg will in time be rendered useless; and this, from the gradual accumulation of sand, by which, he observes, they are continually losing in depth of water. (*v*)

BOTHWELL. See LANARKSHIRE.

BOTOL or BOTTEL, TOBAGOXIMA or TOBAGOSIMA, a small island in the Chinese Sea, about four leagues in circumference. It lies on the same parallel with the south point of Formosa, and is situated between it and the Bashee Islands. It may be seen at the distance of fifteen leagues, but is often obscured by fogs. Its south-east point is placed by Perouse in N. lat. 21° 57′, and in E. long 119° 32′; by Marchand in N. lat. 22° 3′, and in E. long. 121° 34′. Perouse supposes it to be inhabited by a people similar to those of the Bashee Islands. He was desirous of landing, which no navigator had done before him, but was prevented, by a dread of the south-west winds, from approaching the "only bay that seemed to promise an anchorage." He came within half a league of the island without being able to find a bottom, and concluded, that the anchorage, if any, must be very near the coast. He "counted three large villages within the space of a league," and thus describes the appearance of the island: "It is very woody from the third part of height, taken from the sea shore to the summit, which seemed to be capped with trees of the largest size. The space of land, comprised between the forests and the sandy shore, retains a very steep declivity: it was cultivated in many places, and displayed the most beautiful green, though furrowed with ravines, formed by the torrents which descend from the mountains." About half a league from Botol, there is a large rock or islet, with a few shrubs, and a small degree of verdure, but which, according to Perouse, "is neither inhabited nor habitable." It is probable, that admiral Anson had at first made only this islet; the other, as we have mentioned, being frequently covered with fogs. It lies to the south by east of Botol, and is in N. lat. 21° 57′, E. long. 121° 56′. See La Perouse's *Voyages*. (*v*)

BOTTLE, (derived from the dim. *botellus*, Lat.) a name given to certain small vessels, differing in size and form, and composed of different materials. We find them square, circular, and cylindrical; some with short, and others with long necks. We have bottles of wood, stone, glass, and leather; all of them used either for ripening or preserving liquors. According to the *Mem. Acad. Scienc.* 1704, the glass used in bottles has been sometimes found to affect the liquors put into them. Common bottles are made of a coarse green coloured glass. When a finer sort is employed, and the exterior of the vessel has been wrapped about with straw or wicket, it gets the name of *flask*. By this covering, it is rendered less brittle, and is much used by travellers. Glass bottles were unknown to the ancients, at least the knowledge of them has not been traced to a period earlier than the 15th century.

The *amphoræ vitreæ*, described by Petronius, were large wine jars, very different from our glass bottles, both in shape and magnitude. Among the paintings of Herculaneum, were found several figures not unlike a pitcher, wide mouthed, with handles, but none that bore any resemblance to a flask or a bottle. Those of their vessels, which in form approach the nearest to our bottles, are the Syracusan wine-flask, and some of the funeral urns. In place of glass bottles, the ancients made use of cups, into which they drew off as much liquor only as was necessary for immediate consumption. According to Sallust, B. T. 96, the Roman *uter* was made of leather, *ex coriis pecudum*: so also were the Greek ασκοι. We read in Homer of wine being brought "ασκω εν αιγειω" *in a bottle made of goat skin*. Iliad, lib. iii. v. 245: and in Herodotus we find this expression, "ασκους πλησαντα οινου, *having filled skin bottles with wine*. Lib. ii. v. 121. Most nations have employed vessels of this material for containing liquors, and in particular, the eastern nations, the Arabians, Indians, Persians, and Syrians, who still retain the use of them. Maundrell, speaking of the Greek convent at Bellmount, in Syria, informs us, "that the same person, whom he saw officiating at the altar in his embroidered sacerdotal robe, brought them the next day on his own back, a kid, and a *goat-skin* of wine, as a present from the convent." The country people of Persia never go a journey without carrying, by their side, a small leathern bottle, in which to keep their water. The Spaniards still use them under the name of Borrachas. They are convenient, likewise, as the best means of preserving other substances, such as butter, cheese, and honey. These vessels being smeared over with grease, have been always found to keep their contents more fresh, and to secure them better from the intrusion of dust and insects, than any other mode of conveyance. The manner of preparing them is thus described by Chardin: "When the animal is killed, they cut off its feet and its head, and draw it in this manner out of the skin, without opening its belly. They afterwards sew up the places where the legs were cut off, and the tail, and when it is filled they tie it about the neck." It is certain, that bottles of skin were universally employed as wine vessels, among the ancient Jews. To persons not aware of this circumstance, our Saviour's allusion to the common practice *of putting new wine into new bottles*, would appear altogether unintelligible. Skin bottles would be stretched, and in some degree weakened, by the action of the fermenting liquor. By exposure to the air, also, they become parched and brittle, and in this state would be more in danger of bursting, than such as were still soft and elastic. The word אבות, *abuth*, which occurs in Job xxxii. 19, is there evidently employed to express *bottles of skin*; and seems to be applied to these vessels, from their possessing, so remarkably, the property of swelling or distension. We cannot admit the supposition of Chardin—that the bottle was of skin, which Abraham gave to Hagar. Though this notion is, in some degree, supported by the corresponding terms of the Septuagint and Vulgate, yet the original word חמת, *chemeth*, has every where a quite different signification, and properly denotes "an earthen vessel hardened by heat." This interpretation agrees better with the idea expressed by the *root*, which in Niph. signifies *to be heated*.

We may here notice the Abyssinian *Girba*, though it does not properly rank under the term *bottle*. It is made of an ox's skin, squared and stitched together so closely as to be water tight, and will contain about 60 gallons. See Beckmann's *History of Inventions*. (v)

BOTTOMRY, (Lat. *foenus nauticum, usura maritima, contractus pecuniæ trajectitiæ,*) in commercial and maritime law, is a species of marine contract, in the nature of a mortgage of a ship, whereby the owner of a vessel, when he wants money to purchase provisions or other necessaries for an intended voyage, borrows the sum required, and pledges the keel or *bottom* of the ship (*partem pro toto*,) as security for the repayment. Debts of this kind are constituted by *bond* or *bill of bottomry*, signed by the borrower, acknowledging the receipt of the sum, and charging the vessel with the payment thereof, upon her safe return home after finishing the voyage; but at the same time declaring, that if she should happen to be lost during the course of the adventure, the obligation for repayment of the money shall cease and determine, and that the whole loss shall, in that case, fall upon the lender. In the contract of bottomry, then, it is understood, that if the ship be lost, the lender loses the whole of the money which he advanced; but if it returns in safety, then he shall receive back his principal, and also the premium or interest agreed upon, however much it may exceed the legal rate of interest. And such a contract is allowed to be valid, among all trading nations, for the benefit of commerce, and on account of the extraordinary hazard run by the lender.

In bottomry, the loan is made on the security of the ship, which, with its tackle, is liable, as well as the person of the borrower, for the money lent, upon its return home: But when the loan is made, not upon the ship, but upon the cargo, which, from its nature, must frequently be sold or exchanged during the course of the voyage; then the borrower only is *personally* bound to answer the contract; and he is therefore said, in this case, to take up money at *respondentia*. Bottomry, then, is a loan on the ship; *respondentia* on the cargo. In the former, the ship and tackle are liable, as well as the person of the borrower; in the latter, for the most part, recourse must be had to the person only of the borrower. In the latter case, however, the personal responsibility of the borrower is not always the sole security of the lender: For, if the money be lent for the outward and homeward voyage, the goods of the borrower on board, and the returns for them, either in money, or in other merchandise, purchased with the proceeds of them, are liable to the lender. It will be observed, too, that in a loan upon bottomry, the lender runs no risk, though the goods should be lost; and upon *respondentia*, the lender must be paid his principal and interest though the ship perish, provided the goods are safe. Such are the distinguishing differences between the contracts of bottomry and *respondentia*. In all other respects they are upon the same footing; and the rules and decisions applicable to the one are also applicable to the other.

The contracts of bottomry and *respondentia* are of much greater antiquity that that of insurance. They probably arose originally from the custom of permitting the master of a ship, in a foreign country, to hypothecate the ship, in order to raise money to refit. Such contracts appear to have been known among the Romans; and evident traces of them may be found in those fragments of the famous sea laws of the Rhodians, which have been preserved and transmitted to our times. The Rhodian laws, in general, were adopted by the Romans; and accordingly we meet with chapters in their law books, *de nautico foenere, de nauticis usuris*, which clearly show, that the contract of bottomry was well known to the jurists of that distinguished nation. The sum lent upon this contract was called by them *pecunia trajectitia*, probably because the borrower was accustomed to take the money on board with him in specie, for the purpose of employing it in trade, in the course of the voyage; which money was to be repaid, after a fortunate voyage, with a stipulated interest, called *periculi pretium, usura maritima*, or *usura nautica*; but the loan was made on the condition, that the lender should lose both principal and interest, if the ship was lost, by the perils of the sea, in the course of the voyage. From the laws of Oleron, of the Hanse towns, and of Wisley, it appears, that the nature of the contract of bottomry, as well as its name, was perfectly well known to the makers of those ordinances.

The contract of bottomry is essentially different in its nature from almost all others. It differs from a simple contract of loan, because, in a loan, the money lent is at the risk of the borrower, and must be paid at all events; whereas, in bottomry, it is at the risk of the lender during the voyage. Upon a loan, the legal interest only can be reserved; in bottomry, on the other hand, any interest may be legally reserved, which is stipulated between the parties. The contracts of bottomry and insurance, however, resemble each other in several particulars; for the lender on bottomry, or at *respondentia*, runs almost the same risks, with respect to the property on which the loan is made, that the insurer does, with respect to the effects insured. The lender and the insurer are alike liable to the perils of the sea; the former receives the marine interest, and the latter the premium, as the price of the risk, which varies, of course, according to the length and danger of the voyage. Neither the marine interest nor the premium of insurance is due, if no risk be run, even should this be prevented by the voluntary act of the borrower. There are, however, several material distinctions between these two contracts. Thus, in bottomry, the lender supplies the borrower with money to purchase those effects upon which he is to run the risk; whereas an insurer furnishes no part of the property insured. Various other distinctions might be pointed out between these two contracts; but it is presumed they will readily occur to the reader, from a consideration of the nature of the several obligations.

In the contract of bottomry, or *respondentia*, there are principally four things to be considered: The situation of the parties contracting; the articles to be hypothecated, or pledged in security; the nature of the risk which is to be run; and the rate of the premium, or marine interest.

With regard to the parties in this contract, it may be observed, that all persons, who are capable of entering into a contract, may lend money on bottomry; and any person, who has a vested assignable property in a ship or cargo, may borrow money on bottomry or *respondentia*, to the extent of his interest. We have already observed, that this contract appears to have derived its origin from the practice of permitting the master of a ship, when in a foreign country, to hypothecate the ship in cases of necessity, in order to raise money to refit. Such a permission, indeed, is absolutely necessary for the safety of the ship, and to ensure the success of the voyage; and it seems to be implicitly given him in the very act of constituting him master, not indeed by the common law, but by the marine law, which, in this respect, is reasonable: For if a ship happen to be at sea, and spring a leak, or the voyage be likely to be defeated for want of necessaries, it is better that the master should have it in his power to pledge the ship and cargo, or either of them, than that the ship should be entirely lost, or the object of the voyage otherwise defeated. With respect to the purposes of this contract, however, the master possesses no such power, until he actually becomes master, or as far as this business is concerned, until after he sets sail. And, therefore, although he has this power while abroad, because it is absolutely necessary for the purpose of commerce and navigation, yet the very same authority which gave that power in such cases, has denied it when he happens to be in the same place where the owners reside. Hence, if he borrows money on bottomry in the place where his owners reside, without their express authority, the act can only be binding on himself, and affect his own interest on board. Nor is the master allowed in a foreign country, and in absence of the owners, to raise money on this contract for any debt of his own, but merely for the use of the ship, and that only in cases of necessity; which necessity must appear in the written contract, otherwise the lender will have neither a *lien* on the ship, nor an action against the owners, the master alone being liable. This seems clear from the laws of Oleron and of the Hanse towns, and also from the cases which have been determined at the common law upon the subject. The lender, however, is not bound to look to the application of the money which he may have lent upon a bottomry contract, but shall have his *lien* on the ship, and his action against the owners, without being obliged to prove that the money was properly applied, unless indeed he be himself an accomplice in any fraudulent misapplication of it, on which ground the owners may impeach the contract.

There is no express restriction, by the law of England, as to the persons to whom money may be lent on bottomry, or at *respondentia*. A statute, indeed, (21 G. II c. iv.) was once introduced into our code of laws, with the view of preventing insurances from being made on the ships or goods of Frenchmen, during the then existing war with France; which also prohibited his majesty's subjects from lending money on bottomry, or at *respondentia*, on any ships or goods belonging to the subjects of France. But that act was not of long continuance, on account of the peace which almost immediately followed it; and the restraints thereby imposed upon this species of contract were never afterwards revived by any positive law. As insurances, however, upon the property of an enemy, in time of war, are held to be illegal at common law; so also is the lending of money on bottomry, or at *respondentia*, in similar cases.

The articles hypothecated on a bottomry contract, may be the body, tackle, furniture, provisions, or cargo of the ship, or any part thereof; or both the ship and cargo may be pledged. On *respondentia*, indeed, money may be borrowed without hypothecating any thing; and the borrower may take specie on board with him, for the purpose of employing it in trade during the course of the voyage. But it is essential to the nature of these contracts, that either the money lent, or something equivalent to it, should be exposed to the perils of the sea, otherwise there is no risk, on the part of the lender, to entitle him to an higher than the legal rate of interest; and if the money be lent, not upon the ship or goods, but upon the mere hazard of the voyage, the contract becomes of the nature of a wager. The same principles, however, which militate against gaming insurances, apply equally to wagers in the form of bottomry loans; and accordingly such practices have been, in some degree, restrained by different acts of the legislature: 16 C. II. c. 6; 22 C. II. c. 11. § 12.; 7 Geo. I. c. 21. § 2.; 19 Geo. II. c. 37. § 5. Freight may be hypothecated upon a bottomry contract; and seamen may borrow money on any goods which they have on board, but not upon their wages.

The hazard to be run by a lender on bottomry, or at *respondentia*, consists of the perils of the sea in general; comprehending all those accidents and misfortunes to which ships at sea are liable, and which cannot be prevented by human foresight or precaution. These are, for the most part, specified in the condition of the bond, and are nearly the same with those to which the underwriter is liable upon a policy of insurance;—tempests, pirates, fire, capture, and every other misfortune, excepting only such as arise either from the defects of the thing itself, on which the loan is made, or from the misconduct of the borrower. Nothing, however, but a total loss will discharge the borrower. The obligation continues, notwithstanding any damage which the goods may sustain from the perils of the sea; nor is there any deduction on account of such damage. According to the opinions of Lords Mansfield and Kenyon, (Vid. *Joyce* v. *Williamson*, B. R. Mich. term, 23 Geo. III.. and *Walpole* v. *Ewer*, Sitt. after Trin. 1789,) there is, by the law of England, neither average nor salvage upon a bottomry bond. This doctrine is also supported by Mr Park, on the authority of the statute 19 Geo. II. c. 37. § 5., which allows the benefit of salvage to lenders upon ships or goods going to the East Indies; clearly shewing, as that author observes, that there was no such thing at the common law, otherwise there was no occasion to make such a provision. The soundness of this doctrine, however, has been called in question by Mr Serjeant Marshall, who is of opinion, that the statute above mentioned introduced no new principle into the law either of insurance or of bottomry contracts, but merely restored them to their original and proper use, from which a spirit of gaming had perverted them. And the same author observes, that he has not been able to discover any decided case, or authority in the law. to warrant the doctrine laid down by the learned judges, that the lender of money on bottomry was not entitled to the benefit of salvage at common law.

We have already said, that the lender is not liable for any loss arising from the defects of the thing, upon which the loan is made, or from the misconduct of the borrower. Thus, if the ship be not sea worthy, and perish by age, rottenness, or any such cause, or if the goods perish of themselves, or if the voyage be changed by order of the owners, or any loss happen by the barratry of the master, or by the misconduct of the merchant; in such cases the borrower is not discharged, unless there be an express stipulation, which shall render the lender liable for every loss not occasioned by the act of the borrower. The lender is only answerable for losses that occur within the time and place specified in the contract; and if the ship deviate from the course of her voyage, without necessity, he will not be liable for any loss that may subsequently happen. If the period of the commencement and end of the risk be not specified in the bond, the risk, as to the ship, shall commence from the time of her setting sail, and continue till she anchors in safety at the port of her destination; and as to the goods, from the time of their being shipped, until they are safely landed.

The rate of marine interest allowed to be reserved on bottomry contracts, was, by the old Roman law, left indefinite, until the time of Justinian, who, in these and certain other special cases, permitted the larger interest, called *usura centesima*, or one *per cent.* monthly, to be taken. (Voet *ad Pandect.* Lib. 22. Tit. 1. & 2.) In modern times, the rate of marine interest has not been regulated according to any precise standard; but is always allowed by course both of law and equity, however exorbitant it may seem, provided the money lent be *bona fide* put in risk. The interest commences and terminates with the risk; and, upon the cessation of the risk, if the borrower delays the payment, common interest begins, *ipso jure*, to run on the principal, exclusive of the marine interest. See H. Bodini, *Diss. de Codemeria.* Halae, 1697. Cocceii, *Diss. de Codemeria*, 1683. Magen's *Essay on Insurances.* Park's *System of the Law of Marine Insurances.* Marshall's *Treatise on the Law of Insurance.* (*x*)

BOTTOMRY, *Bill* or *Bond* of, is the deed or writing between the parties in a contract of bottomry. (See the preceding article.) For the form of such a deed, see Jacob's *Law Dict.* and Marshall *on Insurance*, vol. ii. Append. p. 718. (*x*)

BOTTS. See OESTRUS, ENTOMOLOGY *Index*; and the *Transactions of the Linnæan Society*, vol. iii. p. 289. (*w*)

BOTZEN. See BOLZANO.

BOVA, a town of Naples, in the province of Calabria Ultra. It is situated near the sea, on the brow of a hill, at the foot of the Appennines, and is distant about 30 miles from Reggio. For the only recent account of this town, we are indebted to Mr Swinburne. "Being out of the way of trade and agriculture," says this intelligent traveller, "it can boast of neither wealth nor agriculture. Most of the inhabitants are of Greek origin and rite, - - - having emigrated from Albania a few centuries ago. - - - The Albanese continued to come over, so late as the reign of Charles V. and their numbers increased very sensibly. At present they amount to one hundred thousand at least, dispersed in a hundred villages, or towns; but many of these settlements are wretchedly poor, and much decayed: those in the neighbourhood of Bova remarkably so. The villagers carry corn, cheese, and butter to Reggio; but that being a poor mart, has but small demands, and a little circulation of money. Their common language is Albanese. The men can speak Calabrese; but the women, who neither buy nor sell, understand no tongue but their own, which they pronounce with great sweetness of accent. - - - The Greek rite is now observed in the province of Cosenza alone, the ministers and bishops having, by degrees, persuaded or compelled the other Albanese to conform to the Roman liturgy and discipline. - - - These Albanese are a quiet industrious people, and their women remarkable for regularity of conduct. In their dress they preserve the costume of Illyricum, from whence their forefathers came. The most beautiful women are generally given in marriage to clergymen, and are exceedingly proud of their husbands, for among them priesthood is the highest nobility. When an ecclesiastic dies, his widow never enters into a second engagement, because none but a virgin can aspire to the hand of a priest, and any other is beneath her acceptance." See Swinburne's *Travels in the two Sicilies*, p. 348—354. (*π*)

Bouchain
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Bouguer.

BOUCHAIN, a small town of France, in the department of the North. It is situated on the Scheldt, about three leagues south west of Valenciennes, and carries on a considerable trade in corn and cattle. The fortifications of this town are remarkably strong. By means of the sluices, which are admirably constructed, and well placed, the greater part of the adjoining country can be inundated at pleasure; so that it would be very difficult to take this fortress, when well supplied by provisions. The town itself is very mean, and the buildings falling to ruin. "The inhabitants," says M. Bygge, "seem to share the same fate, for you meet with poverty in every part of it." Population. 1128. See Bygge's *Travels in the French Republic in* 1798, p. 65. (*j*)

BOUGAINVILLE'S ISLAND. See BOUKA.

BOUGIE. See SURGERY.

BOUGUER, PETER, a celebrated mathematician and natural philosopher, was born at Croisic, in the department of the Lower Loire, on the 10th of February, 1698. At a very early age he was initiated into the study of the mathematical sciences, by his father, who was Royal Professor of Hydrography, and who had published, in 1698, an excellent and complete treatise on navigation. Under such favourable circumstances, it was not surprising that Bouguer should have made rapid advances in his favourite study. We are told by the author of his Eloge, that when he was only 11 years old, he gave instructions to his regent, in the Jesuits college at Vannes, and that, at the age of 13, he detected an error committed by a professor in mathematics; but we require some information respecting the regent and the professor, before we can estimate the merit of these juvenile efforts.

Upon the death of his father in 1713, young Bouguer was appointed Professor of Hydrography, and, at the early age of 15, he is said to have discharged the duties of his office with singular reputation. This situation was by no means given to Bouguer, out of respect to the memory of his father. Professor Aubert, who was charged by the minister with the examination of the young candidate, almost refused to listen to his pretensions, till Bouguer reminded him that knowledge was not confined to any particular age, and solicited a rigorous examination, during which he exhibited an extent of capacity and information which astonished his examinator.

In the small town of Croisic, the talents of Bouguer were almost buried in oblivion. He aspired to a seat in the Academy of Sciences, without indulging the hope of ever reaching the object of his ambition. A trifling accident, however, contributed to extend his fame, and to introduce him on a theatre more suited to the pre-eminence of his talents. Having accidentally met with the celebrated Reyneau at Angers, the academician soon perceived the strength as well as the direction of his genius, and he conversed with him on the different subjects of his studies, but particularly on the masting of ships, a subject which had occupied much of Bouguer's attention. Reyneau took frequent opportunities of mentioning in Paris the researches of Bouguer on the masting of ships, and obtained a reading of the memoir for M. Mairan, who had taken an interest in the young mathematician. Mairan had influence enough to get this made the subject of the Academy's prize for 1727, which Bouguer, though only in the 29th year of his age, carried off against every competitor. In 1729, he received a similar reward for the best method of determining the height of the stars at sea. In his paper on this subject, which was published separately at Paris, in 1729, under the title of *De la maniere d'observer exactement sur mer la hauteur des Astres*, he claims the merit of having been the first who determined the path described by a ray of the sun, in its transmission through the earth's atmosphere; but the solution of this problem had been given long before by our countryman Dr Taylor. This work was attacked, in 1732, by Meynier, a naval engineer, who proposed the use of a semicircle, instead of a quadrant, as employed by our author.*

In the year 1729, Bouguer published his essay on the gradation of light, entitled, *Essai d'optique sur la gradation de la lumiere*, which was republished by the Abbé de la Caille in 1760. This work is replete with new views, and ingenious experiments, and has been much esteemed by all experimental philosophers.

In the year 1730, Bouguer was removed to Havre, and from his proximity to Paris, he formed an intimate friendship with several of the members of the Academy of Sciences, who recognized his distinguished abilities, and obtained for him the office of Associate Geometer, which was vacant by the promotion of Maupertuis, in 1731. In the same year he published his prize essay on the best method of observing the variation of the compass; and in 1734 appeared his *Entretiens sur la cause de inclination des orbites des planetes*, which was the subject of the prize proposed by the Academy for 1732 and 1734. The abilities which were displayed in these different works, procured for their author the office of Pensioner Astronomer in 1735, vacant by the death of M. Lietaud, and pointed him out as one of the most proper persons for carrying into execution the plan which the Academy had meditated, of measuring a degree of the meridian in South America. He accordingly embarked at Rochelle, along with Godin, Condamine, and Jussieu, on the 16th of May 1735, and returned to his native country in June 1744, after an absence of nine years, during which he not only performed the part which was assigned him by the Academy, but took advantage of his situation among the lofty mountains of the Andes, to make a number of experiments and observations of a very interesting nature. The first account of the operations of the three French mathematicians was published at London in 1739, under the title of *A relation of the Observations made at Quito on the obliquity of the Ecliptic*, by M. Bouguer. These observations had been transmitted to our countryman Dr Halley, who caused them to be printed. In the Memoirs of the Academy for 1744 and 1745, Bouguer himself gave an account of his labours in America; but it was not till 1749 that he published his great work entitled, *La Figure de la Terre determinee par les observations de M. M. Bouguer et de la Condamine*, par M. Bouguer; which contains his theoretical investigations respecting the earth's figure; and a full account of all the operations that attended the measurement of a degree of the meridian in Peru. Condamine, the associate of his labours, was displeased with the pretensions of Bouguer, who seemed to withhold from his fellow-travellers their just share of reputation, and he asserted his own claims in his *Journal Historique du Voyage a la Equateur*, &c. Bouguer endeavoured to justify his narrative, in a work published in 1752, entitled, *Justification des Memoires de l'Academie de 1744, et du livre de la figure de la terre, sur plusieurs faits qui concernent les operation des Academiciens.* Condamine replied to this pamphlet, in the same year, in his *Supplement au Journal Historique du Voyage a l'Equateur, et au livre de la mesure des trois premiers degres du meridien, pour servir de reponse aux objections de M. Bouguer*; and he published the second part of it in 1754, in his *Lettre dans laquelle on discute divers points d'astronomie pratique, et remarques sur le supplement au Journal du Voyage de M. de la Condamine*; and he was again answered by Condamine in a *Reponse a la Lettre de M. Bouguer sur divers point de l'Astronomie pratique et sur le supplement de M. Condamine.*

In this controversy Condamine seems to have enjoyed the greatest share of public suffrage. Bouguer was well known as having a suspicious and jealous temper, and to be more disposed to envy than to exalt the good name of his contemporaries. The mortification which he felt at the applause given to Condamine, the natural irritability of his temper, and the death of his only brother, to whom he was ardently attached, seem to have had some share in injuring his bodily health, which an incessant application to study had been gradually undermining. He was seized with an obstruction of the liver, which, though it resisted the power of medicine, still permitted him to continue his studies. He laboured hard to complete his *Traité d'Optique*, which he had just time to finish. A few days before his death, he went in a coach to his printer, and delivered the MS. into his hands. Exhausted with disease, he died on the 15th of August 1758, at the age of 60 years; a time of life when much was expected from his industry and talents.

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* See the *Recueil des Prix*, vol. i. for Bouguer's paper, and vol. ii. for that of Meynier.

The character of Bouguer was distinguished by modesty and simplicity. The truths of religion were instilled into him along with the first principles of geometry, and had made such an impression upon his mind, as to regulate and adorn his moral conduct. On his death-bed he cherished the same views which had thus guided him through life, and he closed his existence with the most philosophical fortitude, and with a piety and resignation truly Christian.

In the year 1784, a very singular book was published at Paris, entitled, *Relation de la conversion, et de la mort de Bouguer*, par P. La Berthonie *Dominicain*, which must contain some curious information respecting the life and death of our author. We have searched diligently, but in vain, for this curious production, which we have seen mentioned only by La Lande, in his *Bibliographie Astronomique*, with the following singular observation, " Ce confesseur," says La Lande, " assure que illustre academicien mourut dans les sentimens d'une pieté exemplaire. Le devotion de Newton est une preuve de ce que peuvent l'habitude et la Crainte sur les plus grands esprits." In this passage La Lande seems to admit the fact of Bouguer's conversion, and to ascribe it, as he does the piety of Newton, to the influence of custom and fear. We cannot stoop even to express our detestation of the contemptible sneers which this atheistical astronomer has so profusely heaped upon every thing like piety and religion. Had he reasoned against our faith, it might have been a duty to refute him. But we have only to say, that if any of our readers should for one moment think lightly of religion, because such a character as La Lande has dared to attack it, we can assure them, upon the evidence of an eye-witness, that this very man thought differently in the decline of life, and was even seen strewing his house with flowers in honour of some Romish saint.

Beside the works of Bouguer, which we have had occasion to notice, he published *Nouveau Traité de Navigation, contenant la Theorie du Pilotage*. Paris, 1753, 4to. An Abridgment of this work by De La Caille appeared in 1769, and it was reprinted in 1769 and 1781, and in 1792 with the notes of La Lande. *Traité du Navire*, Paris, 1756. *Operations faites par l'ordre de l'Academie Royale des Sciences, pour la verification du degre compris entre Paris et Amiens, par M. M. Bouguer, Camus, Cassini, De Thury, et Pingré.* This memoir, composed by Bouguer, was also published in the Memoirs of the Academy for 1754. The papers on various subjects of physics and navigation which Bouguer communicated to the Academy, will be found in their Memoirs for 1726, 1731, 1732, 1733, 1734, 1735, 1736, 1739, 1744, 1745, 1746, 1747, 1748, 1749, 1750. 1751, 1752, 1753, 1754, 1755, 1757. (β)

BOUJEIAH. See Bugia.

BOVINO, a city of Naples, in the province of Capitanata, and the see of a bishop. Its situation is very lofty, on the south side of the romantic river Cervaro. The *valley of Bovino*, which derives its name from this city, commences between Savignano and Greci, two small towns, which are loftily situated on each side of the defile. On one side of this valley are ranges of corn fields, adorned with clumps of trees, and occasionally interrupted with precipitous and rugged masses of calcareous rock; on the other side, pasture grounds and fields of corn and hemp appear, at first, among the trees, till the whole surface is covered with the extensive forest of Bovino. The Cervaro runs through this picturesque valley, which terminates at the bridge of Bovino, 18 miles from Ariano. The road through this forest was made in 1743 by the king, who often indulged, in this delightful vale, his passion for the chase. " The present king," says M. Ulysses, who travelled through Naples in 1789, " has never visited this forest, but has permitted all his subjects to hunt there, and granted a general liberty to clear away the wood, and put as much of the ground into tillage as the husbandman shall think proper. Since this permission, the forest has afforded pasture to all kinds of cattle." " The inn at the bridge of Bovino," says Mr Swinburne, " is placed in a cheerful situation; but from the lowness of its position, and the proximity of the woods and water, in the summer season it is subject to malignant fevers." E. Long. 15° 20′, N. Lat. 41° 15′. See Ulysses' *Travels through Naples*, translated by Mr Aufrere, p. 16, 229; and Swinburne's *Travels*, v. i. p. 135, 136. (*j*)

BOUK, Buke, or Book Muslins, known also by the name of *Wire Muslin*, from the transparency of the fabric, is the lightest and most flimsy species of all the varieties of Indian manufacture. The British imitation originated in Scotland about the year 1785, since which time it has been prosecuted to great extent. In England it has been attempted without much success, for the excessive lightness of the fabric, and consequently the great care which is required to preserve the warp from breaking, requires great delicacy, both of pressure in opening the warp, and nicety of hand in striking it equally home in the cloth. The lightness of the fabric being so great, it becomes impossible, even for the nicest and most experienced weaver, to regulate the motion, or oscillation of his lay, so as to bear sufficiently light, were the reed firmly fixed between the shells, as in stouter fabrics. To remedy this, it becomes necessary that the reed should be fitted so as to yield easily to a very slight pressure, and return to its position as soon as that pressure ceases to act upon it. For this purpose, in weaving all the light fabrics of muslins, the reed is placed so as to yield easily. In the jacconett fabrics, an instrument, known by the name of a pair of *flyers*, is used. This is exactly an inverted lay of a very light construction. It consists of two perpendicular arms or swords, like the common lay, but constructed very light and thin, so as to bend easily like a spring. The horizontal part forms the upper shell for the reed; and thus the groove for receiving it is inverted, being placed above instead of being below. The upper extremities of the arms are tacked to the back of the swords of the lay by two nails; and these arms being very thin, easily yield, whenever the reed comes in contact with the body of the cloth. The quantum of spring is very easily regulated, by tying two small pieces of twine round the swords, both of the flyers and lay. When these cords are placed high, a considerable part of the spring being below, will yield very easily; and as they are shifted downwards, nearer to the reed, the springing part becoming shorter, the reed always opposes a greater resistance before it yields. The cords thus answer every purpose of a moveable fulcrum, and, by shifting them, the power of the spring may be increased or diminished in an instant.

For the very light fabrics, such as those which form the subject of this article, a double set of these flyers has been invented. This contrivance is similar to the former: it consists in having a second pair of flyers, with the groove inverted, to receive the under as well as the upper part of the reed, so that it yields below as well as above. Flyers of this construction are not, however, in much estimation; and it may be observed, that, in all mechanical professions, the operative tradesmen, although seldom able to account for their opinions, are almost universally directed, by simple experience, to the choice of the best. In the first place, the double flyers, as they are called, although they yield both above and below, yield equally, or nearly so; consequently the divisions of the reed always remain perpendicular to the horizon, and the action of the reed upon the cloth is uniformly at right angles to the warp, or nearly so. Thus, the impetus being direct, the force is applied in that way in which it will produce the most powerful effect; but the very object of this contrivance is not the acquisition, but the diminution of effective power; consequently the more obliquely the force is applied, the better for the purpose. In the second place, the double flyers are not only expensive in their construction, but, from their complexity, very liable to be put frequently out of order; for unless the whole four cords, which regulate the spring, are kept, not only at an exact uniformity of tension, but also at an exactly equal distance from the point of percussion, where the reed acts upon the cloth, their resistance will be unequal, and the whole fabric liable to be clouded. Experience proves, that an operative weaver, totally unacquainted with the laws of motion and theoretical principles of mechanics, will very seldom be able to preserve that uniformity necessary for the regulation of this machine, and even if he were, the very change of tension, produced by vicissitudes of weather, would be a source of very vexatious trouble and delay. The double flyers have, for these reasons, been almost universally abandoned, and a very cheap, simple, and efficacious substitute adopted. This consists merely of a stout woollen cord, tightly stretched between the swords of the lay, and to which the upper rib of the reed is tied, at intervals, with pieces of packthread, or fine twine. Woollen is preferred to any other substance, because it is less liable to constriction, or relaxation, from changes of weather, than any other fibrous substance with which we are acquainted. The upper shell, or cover of the reed, is generally removed on account of its weight, and a slight spar of wood nailed between the swords in its place, with which the weaver gives the necessary vibration to the lay. From the lightness of the fabric, great care is necessary in picking and dressing the yarn, and great uniformity in working the treddles and lay; and, upon the whole, the weaving of bouk muslins requires patient and unremitting attention, in a much superior degree to active exertion.

There is, perhaps, no species of texture, in the whole extensive range of the cloth manufacture, on which so great a diversity of opinion does, and probably ever will, exist, as in the fabric of these light muslins.—It is mere matter of fancy, perhaps frequently of whim. Scarcely any two manufacturers, perhaps, agree entirely in their opinions respecting it, and the fancies of purchasers are just as various. Thirty, forty, or even fifty numbers of difference, in the fine cotton yarn, which is used for the bouk manufacture, are applied by different manufacturers to the same reed, and each of them will perhaps contend, that his own is the best of all possible methods. In short, a prudent man can only endeavour to succeed by keeping his stock as light as possible, and carefully collecting the opinions of his customers, in the same way that the sense of popular assemblies is ascertained, namely, in endeavouring to please the majority. A medium between the opposite extremes may be found, by taking No. 120, or 129, for a 1200 reed, and calculating others by the general rule. In general, however, it may be remarked, that if the goods are intended to be finished plain, they are generally preferred of a very light fabric; but if they are to be ornamented with tambour, or needle work of any description, a little more strength, to enable them to undergo the operation, is not a matter of choice but necessity.

After being bleached, bouk muslins are always stiffened with starch, to give them that clear appearance, from which they derive the name of *wire muslins*. This also is considered by bleachers as a delicate operation; for its excellence consists in giving to the threads a sufficient quantity to stiffen them, without allowing the mucilage to spread through the general fabric, and give it a cloudy appearance; the only way of effecting this is, by taking very particular care that the starch be diluted to a proper consistency, and that no more be applied than will be absorbed by the fibres of the cotton; for it is obvious that after they are saturated, the residuum must spread in clouds over the surface. No rule can be given to regulate this, excepting that judgment acquired by experience; at least, we are unacquainted with any experiments having ever been made, to ascertain any fixed or precise rules for its regulation. It does not, however, appear impracticable, or even very difficult, by a few judicious experiments, to fix at least some more precise standard than has hitherto been done.

From the circumstance of transparency being the chief recommendation of bouk muslins, every operation which would tend to flatten the threads in finishing them, so far from adding to their appearance, would be excessively injurious. They are, therefore, never put through any operation of calendering, but merely folded with regularity, and thin pressed, with a smooth board between every piece.

BOUKA, BOUCA, or LORD ANSON'S ISLAND, an island of the Pacific Ocean, which is separated from Bougainville island by a narrow channel. Both these islands appear to be well peopled, from the immense plantations of cocoa nut trees which cover their shores. The natives are particularly dexterous in the use of the bow, and in the management of their canoes, which are ingeniously formed from several planks. A short account of the appearance and manner of the natives, which do not essentially differ from those of other savages, may be seen in Labillardiere's *Voyage*, v. i. p. 375. The north point of Bouka lies in E. Long. 154° 29′, and S. Lat. 5° 5′ 36″. (*π*)

BOULAC, or BULAK, a town in Egypt, supposed by Niebhur to be the site of the ancient Litopolis. It is situated upon the Nile, about two miles west of Grand Cairo; and may be considered as the port of Lower Egypt, as Misr-el-Attike is of Upper Egypt. It is a large but irregular town, which seems to have gradually risen around the place of embarkation, and is now the scene of great commercial activity, which the traveller Sonnini describes in a very picturesque style: "A multitude of men, occupied in removing bales of merchandise, exhibited the activity of commercial ports. A great number of boats, arranged in rows, sunk by degrees in the water, as they received their loading; while others, whose cargo was unloaded, rose above the rest. All agitated by the waves, which an impetuous wind put in motion, balanced their long sail-yards; and the moving and diversified picture, which the port of Boulac presented to my view, made those moments pass rapidly away, which I was under the necessity of passing there." (Sonnini's *Travels*, vol. iii. p. 10.) This town contains a custom-house, a large bazar, or market-place, magnificent public baths, and various magazines and square buildings, named, in the language of the country, *Okals*, which serve at once the purpose of an inn to the merchants, and of a warehouse for their goods. One of the largest and most convenient of these buildings was built by Ali Bey the Great, and is called the Alexandrian Okal, as being chiefly used for merchandise brought from that city. The grounds between the houses of Boulac, and between this port and the town of Kahira, or Cairo, are filled with gardens, which give a rich and pleasing appearance to the place, and afford an abundant supply of fruits and vegetables. In the middle of the river, nearly opposite to the port of Boulac, is a small island, where Murad Bey had a summer house, or place of retirement, and where are also several fertile gardens. On the opposite shore of the river, is the village *Embabé, or Embabil*, famed for the excellence of its butter, declared by Sonnini to be the only place in Egypt where butter can be eaten fresh. The town of Boulac was almost completely destroyed by the French army in 1799. See Sonnini's *Travels in Egypt*, vol. iii.; Brown's *Travels in Africa*; and Savary's *Letters from Egypt*. (*q*)

BOULOGNE, named also BOULOGNE SUR LA MERE; a sea-port town of France, in the department of the Straits of Calais, and formerly capital of the small province of the Boulonnese in Picardy. It was anciently called Gesoriacum Navale, or Portus Gesoriacus, afterwards Bononia, or Bolonia; and is generally considered as the Portus Iccius whence Julius Cæsar embarked for the invasion of Britain. Its celebrated Pharos, or light-house, was built by Caligula, of an octagonal form, and about 200 paces in circumference; and was repaired by Charlemagne in 810. It was long governed by its own earls, of an illustrious family, descended by the mother's side from the second race of the French kings; and after passing through the hands of various noble houses, it became the property of Robert VI. Earl of Auvergne. In 1477, it was yielded by Bertrand II. of Auvergne to Louis XI. in exchange for the county of Lauragais, and was thus united to the crown of France. In 1487, it was reduced to great extremities by Henry VII. of England, when he entered France to protect the duchy of Brittany; and in 1545 was taken by his son Henry VIII.; but in 1550, during the minority of Edward VI. it was given up to the French, on payment of 400,000 crowns, to defray the expense of its fortifications. While it was in the possession of the English, they surrounded the light-house with strong towers; but it was afterwards entirely neglected, and in 1644 the whole structure was a heap of ruins.

Boulogne.

Boulogne is situated at the mouth of the river Liane, and is divided into an upper and lower town. The former is placed on a declivity of the Chalk-mountain; is surrounded with a wall, contains about 400 houses, and, before the revolution, was inhabited chiefly by nobility. The latter, though much larger and nearer the sea, is without walls, very irregularly built, with narrow winding streets, and is inhabited by trades-people. The harbour is very small, and has a difficult entrance, defended by a fort and batteries; but this passage has been greatly improved since 1803, when Boulogne was made the rendezvous of the flotilla, which was destined for the invasion of Great Britain. The water in the harbour scarcely rises to seven feet, at the highest tides; so that only boats and small vessels, which do not draw more than five or six feet of water, can go up to the town. There is scarcely a road, in which vessels can ride safely at Boulogne; and the anchorage is very bad, especially towards the north of the town, where the ground is foul, and the coast lined with small rocks. The only secure station is to the south east of the new tower, about a cannon shot from the land, where there is tolerable anchorage, from five to fifteen fathoms, upon a firm clean sand, and where the fishers and merchant vessels generally moor at low water, waiting to take advantage of the tide to enter the port. Since the year 1566, Boulogne was a bishop's see; but this, with other privileges, it lost at the revolution. Not far from the town is the tomb of the unfortunate aëronaut Pilatre de Rozier. The principal article of commerce at Boulogne, is supplied by its fishery, especially of herring and mackerel; the latter of which is carried on in the months of May, June, July, and the former in October, November, and December. There are about 60 fishing boats employed in this trade, with ten men to each boat. They sometimes carry their fish to Calais, on account of the greater convenience in landing their cargo; but they are chiefly sent for sale to Artois, Flanders, and Paris. The herring fishery of Boulogne had attained great importance so far back as the year 1542, and was patronised by the principal men in the kingdom, as appears from an ancient record preserved by the treasurer of the city, who made his escape, when the place was taken by the English in 1544; and, to to this day, it retains so much of this celebrity, that fish from other places are very generally exposed to sale in Paris under the name of Boulogne herring. A few woollen and linen stuffs are manufactured at Boulogne; and it used to import salt hides from Ireland, with white wines, brandy, and salt, from French ports, for the consumption of the neighbourhood. But the chief gains of its merchants arise from the exportation of Bourdeaux, Burgundy, and Champaigne wines, and the smuggling of brandies and cambrics to England. Besides two market days every week, there is a free market on the first Wednesday of every month, and a fair every year on the 11th of November, which continues nine free days; and which is chiefly remarkable for its great show of cattle. Boulogne contains about 10,000 inhabitants; and is seven leagues south-south east from Calais, 22 west of Lisle, and 55 north east of Paris. At spring tides, it is high water at 10 hours and 30 minutes. N. Lat. 50° 43′ 33″, E. Long. 1° 36′ 33″ (q)

BOULTER, Hugh, D.D. Archbishop of Armagh, and primate of Ireland, was born in or near London, of respectable and wealthy parents, on the 4th of January 1671. He received the rudiments of his education at merchant-tailors' school; and was admitted a commoner in Christ-church, Oxford, some time before the Revolution. Soon after that event, he was, on account of his great merit, elected a Demi of Magdalen-College, along with Mr Addison and Doctor Joseph Wilcox. He was afterwards made fellow of the same college. He remained in the university till the year 1700, when he was called to London by Sir Charles Hodges, principal secretary of state, who made him his chaplain. Not long after, he was preferred to the same honour by Dr Denison, Archbishop of Canterbury. While in these situations, he had occasion to appear often at court. There his merits attracted the notice, and procured him the patronage of the Earl of Sunderland, principal Secretary of State, by whose influence he was promoted to the parsonage of St Olave in Southwark, and to the archdeaconry of Surrey. As pastor of St Olave, he distinguished himself by his unremitting attention to the temporal comfort and spiritual welfare of the people over whom he was set. In 1719, he went to Hanover with George I., in the capacity of his chaplain: and at the king's desire, undertook to instruct young prince Frederic in the English tongue. His majesty was so much pleased with his temper and conduct, that he promoted him to the bishopric of Bristol, and deanry of Christ-church, Oxford, which had become vacant by the death of Dr Smalridge. As a bishop, he was extremely zealous in promoting the interests of religion throughout his diocese; and this he did particularly by enforcing on the clergy the necessity of personal respectability, and of a faithful discharge of their peculiar duties. In 1724, he was nominated by the king to the archbishopric of Armagh, and primacy of Ireland. This nomination, of which most men would, on many accounts, have accepted with the utmost readiness, Dr Boulter begged leave to decline: and it was only in consequence of the absolute command of his majesty, and not without great reluctance, that he at length agreed to leave his present situation, for one so much superior to it in dignity and importance. The king and his minister urged the promotion, not only in consideration of Dr Boulter's general merits, and peculiar qualifications for the spiritual jurisdiction to which he was appointed, but also because at that time, in consequence of Wood's coinage of base copper, Ireland was in an alarming state of ferment and agitation, which they hoped to remedy by the sound judgment, and firm yet conciliating temper of the bishop. And he did not disappoint the expectations of his royal patron. As soon as he was formally introduced into his new office, he began to study the prosperity of Ireland, which he thenceforth called his country; and to this end devoted a great proportion of his time and fortune. His life, indeed, was almost solely spent in deeds of public usefulness and private charity. To do good as he had opportunity, was his business and his pleasure. Whatever plan was deemed useful to promote the commercial prosperity, the religious instruction, the domestic happiness, or the individual comfort of the Irish, found in him a steady and efficient friend. More than once, he was instrumental, by his activity and munificence, in averting the evils of famine and pestilence, with which the country was threatened. To the scheme for a canal from Lough-Neagh to Newry, by which the whole kingdom, especially the northern division of it, was to be greatly benefited, he gave not only his best counsel, but considerable sums of money and contributions of timber. The poor clergy of his diocese frequently experienced his kindness, by having their children educated at school and the university at his individual expense. For clergymen's widows, too, he erected four houses at Drogheda, endowed them suitably, and put them under proper and judicious regulations. The same thing he directed by his will to be done at Armagh. He expended £30,000 in augmenting small livings, and buying glebes in Ireland, besides what he bequeathed for similar purposes in England. He was a zealous and active member of the *Incorporated Society in Dublin for promoting English Protestant Schools in Ireland*, the benevolent object of which he forwarded by annual subscription, occasional benefactions, and every means in his power. His private charities, from the secret and unostentatious manner in which they were conducted, cannot be easily ascertained; but from the information of those who had access to know, it is certain, that they were uncommonly great, and quite worthy of his humane and liberal mind. The archbishop took a considerable part in the political government of the country. When health permitted, he gave regular attendance at the council board, and contributed his full share in giving dignity to their debates, and wisdom to their decisions. He was particularly active in supporting and carrying into effect a measure for reducing the value of the gold coin, for the purpose of putting a stop to the injurious practice of sending silver abroad.

This measure excited against him a great deal of popular odium, and made Dean Swift his inveterate enemy. But he had fortitude enough to despise the clamours of the multitude, and the enmity of the Dean: and experience soon demonstrated, that his knowledge of political œconomy, and of the best interests of the country, was, in this matter, far superior to theirs. Perhaps the opposition which he met with in his efforts to regulate the coinage, was owing, in a great degree, to his well known preference of what was called the English to the Irish interest. Such a preference he did in fact aver, in so far as he always recommended persons from England to the places of chief trust and authority. But he acted thus from no selfish views or national partialities, but from a firm conviction that the welfare of Ireland, and the king's service, were thereby most effectually promoted. His wisdom in this proceeding may be fairly questioned. But the uprightness and integrity of his motives can be doubted by nobody who is acquainted with his character. To the prosperity of the church, and the security of the Protestant religion, he was remarkably attentive; and took an active part in framing and passing the bills which parliament enacted at that period, with reference to these important objects. He seems to have enjoyed, above most statesmen of his day, the confidence of the government; and the confidence which he acquired by his well known judgment and talents, he continued to retain to the end of life, by the prudence and moderation that he displayed, with regard to every scheme on the adoption of which he was consulted, or in the execution of which he was employed. As a proof of the estimation in which he was then held, it may be mentioned, that he was no fewer than thirteen times one of the Lords Justices, or Chief Governors of Ireland. He set out for England on the 2d of June 1742; and, after an illness of two days, died at his house in St James's, on the 27th of September following. He was buried in Westminster Abbey, where a stately monument has been erected to his memory. The temper of Primate Boulter was remarkably meek and pleasant. His aspect was venerable: and his demeanour grave and sedate. To the rich he was affable, and to the poor kind and condescending. To the principles of civil and religious liberty he was firmly attached. He was well known to possess a great deal of learning: but as his life was almost wholly spent in action, he has scarcely left any memorials of it behind him. He wrote and published some *Charges* to the clergy of his diocese, which are judicious and instructive. It may be easily supposed, that his political correspondence, while he had so much to do in the government of Ireland, would be extensive and interesting. Fortunately it has been preserved. It was published in 1769, at Oxford, in two volumes 8vo, with this title, *Letters written by his Excellency Hugh Boulter, D.D. Lord Primate of all Ireland, &c to several Ministers of State in England, and some others, &c.* These letters deserve a careful perusal from all those who wish to be particularly acquainted either with the real character of Dr Boulter himself, or with the history of the Irish government during the period in which he flourished. See *Biog. Brit.* (τ)

Bounty.

BOUNTY, signifies a pecuniary gratification paid from the public revenue of a state, for the encouragement of navigation and shipping; or of some particular branch of agriculture, trade, or manufacture.

Bounties may be divided into two sorts; as they relate to the defence, and as they relate to the commercial prosperity of a state. The first may be called their *political*, in contradistinction to the second, their *commercial* object. A bounty of the former description may be politically right, while it is commercially wrong. A bounty of the latter description can never be right either in the one way or the other.

First, From the insular situation of Great Britain, the bounties which relate to the defence of the state, are chiefly those given for the direct and avowed purpose of encouraging its navigation and shipping. Bounties of this description seem, on the whole, expedient. It is certain, that, like all other bounties, their effect is to force a greater proportion of the general capital into that sort of employment than would otherwise go into it, and thus to stunt other occupations of the capital, which would naturally tend thither without any national premium. In a commercial point of view, therefore, bounties of this nature produce a double disadvantage. They produce a negative disadvantage, by drawing capital from its natural, and therefore productive, employment, to one that is losing; and they occasion a positive disadvantage, in the tax which must be raised upon the people to defray the bounties themselves. The principle of this description of bounties, however, is still *politically* good. The defence of the country depends mainly on its maritime force. The superabundant capital invested in navigation and shipping, by the encouragement of the bounties, necessarily implies a certain correspondent superabundance of seafaring men. But it is chiefly in this school of hardiness, dexterity, and maritime attachment, that the national security is raised, cherished, and preserved. To accomplish, therefore, this essential object, or at least to render it as much as possible independent of the power of accident, must be a political good, greatly counterbalancing the commercial disadvantages to which we have alluded.

The bounties given directly and avowedly for the purpose of augmenting the navigation and shipping of the country, are principally the tonnage bounty on the white herring, and that on the whale fishery. The injudicious manner in which these bounties, particularly the former, have been granted, as well as their unnecessary extent, has been clearly pointed out by intelligent œconomists. It has been thought that the commercial disadvantages attending every species of bounty, if not prevented, might at least have been palliated. To connect with the tonnage bounty upon the white-herring fishery, a bounty upon the herrings exported, was the direct way to raise the price in the home market, and thus, by a very plain operation, to embarrass the poorer sort of people with an increased price, more or less, for all the necessaries of life. Nor was a high rate of the tonnage bounty necessary. It could only bribe the indolence of the fishers, and, as has been smartly said, make them more intent on catching the bounty than the fish.

Second, The other, and by far the greater class of bounties, comprehends those which relate more directly to the commercial prosperity of a state. These, therefore, have, or profess to have, for their object, the encouragement of some particular branch of agriculture, trade, or manufacture. For this purpose, direct bounties upon production have seldom been resorted to by the British legislature. Those upon *exportation* have been the favourite, and almost exclusive mode.

Among custom-house people, the term, as connected with exportation, and as we are now using it, is frequently confounded with that of *drawback*. According to them, every payment made by the government to the exporter of a commodity which has undergone any change since its importation, is *bounty*, although it should, in fact, be only a return of the duty formerly advanced upon it, when under another shape. Thus, what is called a bounty upon the exportation of wrought silk, is, in truth, nothing else than a return or drawback of the duties upon raw silk imported. The term *drawback* they confine to the return of duties upon those commodities which remain the same as when imported. The two things, however, are in their nature clearly distinct. Nor in our reasonings upon them, is there any difficulty in preventing this impropriety in the use of the terms from affecting the accuracy of our conclusions. Bounty upon exportation, denotes a clear advance from the public treasury, without reference to any import duties formerly exacted upon the commodity itself, or the raw material of which it is composed. In the loose sense of the custom-house, it can frequently be the subject of little approbation or censure. In that sense, it often implies nothing else than a refunding, more or less, of a duty formerly exacted, and therefore so far only tends to restore things to their former equilibrium. In the sense, however, in which the term is properly used, a bounty upon exportation must produce some positive effect, either good or evil.

Bounties of this sort form one of the great expedients by which the Mercantile System undertakes to enrich the country. While by heavy duties, says this system, you restrain the importation of foreign commodities, and encourage by liberal bounties the exportation of your own, the balance of trade with every other state must necessarily be in your favour. This balance must as necessarily be paid in gold and silver; and as these metals form the only species of riches worth the coveting, the nation must inevitably grow rich. It is long since the foundations of this system were demonstrated to be in error; but the fabric itself is, to this hour, incessantly propped by the busy and eager hands of a vigilant self-interest. None but persons of obtuse intellect are, now-a-days, blind to the absurdity of its principles; whilst its pernicious operation is still permitted to gratify a mercantile and manufacturing avarice, at the expence of the general community. Who now maintains the exploded doctrine of a balance of trade, or indulges a childish fancy for gold and silver as the only or principal characteristics of national wealth? Who does not now see that bounties upon exportation can have no other effect than, by diverting capital to branches of employment which cannot be supported without them, to deprive other branches, which require no such aid, of their necessary supply, or to prevent the capital so diverted, from establishing new and independent modes of employment for itself? And who does not acknowledge, that, besides this negative disadvantage, the positive evil of a double tax does not result to the community; one to pay the bounty, and another in the advanced price of the commodity in the home market, after part of it has been forced abroad by the bounty? It is pretended, that new and hazardous manufactures and departments of trade are cherished by this expedient. We should be glad to know any one particular manufacture or branch of trade which could be fairly proved to have derived its maturity from this cause. On the contrary, the very nature of the thing seems to indicate the impossibility of the fact. No expedient could more effectually bribe the indolence and negligence of those who were to receive the bounty. Trusting to their profit at all events, in the premium to be paid to them from the public revenue, the inducement to extraordinary skill and dexterity must be prodigiously lessened. The fact accordingly we believe to be, that whenever the bounty has been withdrawn from any branch of manufacture or trade, that owed its origin and first progress entirely or mainly to it, languor and decay have been the consequence. We say "entirely or mainly;" for where the physical, local, or moral circumstances of the country, afforded sufficient encouragement of themselves, the expedient of bounty was only the more absurd, and could serve only to retard the natural progress to maturity.

Bounties being distinguished as they relate to the defence, and as they relate to the commercial prosperity of the state, a third sort may be regarded as arising from both. This properly forms no new class, but is merely a compound of the elements of the other two. To this class may be referred all the different bounties upon exportation which we have just been considering. All of them, it is said, encourage more or less the extension of our navigation and shipping. But this effect, if it exist at all beyond what would otherwise have taken place had the export and import trade been left to their natural balance, exists in so subordinate a degree, and is so little insisted upon in comparison of their other great result, the pretended favourable balance of trade, that they must always be principally viewed as affecting our commercial prosperity. There are, however, bounties of this mixed description, which deserve to be considered as principally affecting the defence of the state. Of this sort are the bounties upon the sail-cloth and gunpowder exported. That as much of these commodities would by this time have been manufactured in this country without the encouragement of the bounties as with it, is at least problematical; and our security has at every different point of time been too closely connected with a full and ready supply of them, to have allowed them to depend upon a balance of probabilities.

But by far the most interesting bounty of this mixed character, is that given upon the exportation of grain. Dr Smith condemns it, not only on the principle applicable to all other bounties upon exportation, but also on the principle peculiar to itself, that ty.

it has little or no tendency to enrich the parties more immediately concerned. Nor, according to him, has it ever had any effect in extending the quantity of corn grown; so that it can have no operation in securing the country against a scarcity in the event of a war with the grain countries of America or Europe. Mr Malthus, on the other hand, maintains, that it not only produces both these effects, but that, unlike other bounties, it occasions an actual reduction in the price of grain to the community at large. By arguing upon its principle, he has endeavoured to shew that it must have a tendency to enrich the land-proprietor and farmer in a similar manner, and nearly in a like proportion, as other bounties affect the interests of the export merchant and manufacturer; and, by a statement of facts as well as argument, he asserts its beneficial result, in having greatly extended the tillage and consequent produce of the country, as well as in having considerably reduced the average current prices. The just conclusion appears to us to be, that while, with Dr Smith, its effects on the general society must be regarded as no better, in a *commercial* point of view, than those of other bounties on exportation: its *political expediency*, in having extended the tillage of the country, must, on the other hand, be conceded to Mr Malthus. He is right, we think, in asserting its tendency to enrich the parties more immediately concerned, in the same manner as the bounties upon manufactured commodities exported; but we are far from being convinced of its efficacy in lowering the average prices in the home market. We must not omit to add, that although this acute and intelligent writer has defended the principle of the corn bounties, he is by no means a friend to this or any of the doctrines of the mercantile system. "If throughout the commercial world," says Mr Malthus, whose liberal philosophy has shed a ray of light through the gloom of prejudice which still envelopes his native, as well as its sister university,—"if throughout the commercial world every kind of trade were perfectly free, one should undoubtedly feel the greatest reluctance in proposing any interruption to such a system of general liberty; and, indeed, under such circumstances, agriculture would not need peculiar encouragements. But under the present universal prevalence of the commercial system, with all its different expedients of encouragement and restraint, it is folly to except from our attention the great manufacture of corn which supports all the rest. The high duties paid on the importation of foreign manufactures, are so direct an encouragement to the manufacturing part of the society, that nothing but some encouragement of the same kind can place the manufacturers and cultivators of this country on a fair footing. Any system of encouragement, therefore, which might be found necessary for the commerce of grain, would evidently be owing to the prior encouragements which had been given to manufactures. If all be free, I have nothing to say; but if we protect and encourage, it seems to be folly not to encourage that production which, of all others, is the most important and valuable."

The term bounty, it may further be observed, is, in common speech, sometimes applied to those premiums which are occasionally given by the government, but more frequently by certain public-spirited societies, for the encouragement of extraordinary ingenuity and skill in particular departments of the arts. But there is little danger of confounding this application of the word with its proper and more important one. The premiums so bestowed are of inconsiderable amount, and can never engage the public attention as a matter of national expenditure. They cannot be regarded as having the least effect in disturbing the natural tendency to a balance in the employment of the general capital. And economists are agreed, however opposite the systems they may have adopted, that the money so expended is beneficial to the commonwealth. (J. B.)

Bourbon.

Its name.

BOURBON, or MASCARENHAS, an island in the Indian ocean, lies in S. Lat. 20° 52′, and E. Long. 55° 30′, about 100 miles W.S.W. of Mauritius, and 370 east of Madagascar. When first discovered by the Portuguese, it received the name of Mascarenhas; but this was afterwards changed by the French into Bourbon, and, during the revolution, into Reunion, which, in the servility of adulation, sunk in that of Bonaparte. Its form is nearly circular, and, when seen from a distance, it appears to rise gradually from every side to a high-peaked point near the centre, the altitude of which is estimated at 9,000 feet above the level of the sea. It is 38 leagues in circumference, when following the principal windings of the coast; and its greatest diameter, from Pointe des Galets to Pointe de la Table, is 14 leagues.

Composed of two volcanic mountains.

This island is composed of two volcanic mountains, the Gros-Morne, and the Volcano; the latter of which still exercises its tyrannical devastations, and is perpetually emitting either flame or smoke. The Gros-Morne, which lies towards the north, and which is of the greatest dimensions, has long ago ceased its eruptions; but every feature of the surrounding country,—rapid rivers running deep between perpendicular ramparts, and impeded in their course by immense rocks—numerous craters—basaltic prisms, often disposed in regular colonnades—various beds of lava, and deep vallies and ravines, all indicate the terrible physical revolutions to which it has formerly been subject. Ages, however, have passed since the northern parts of Bourbon have been freed from the ravages of subterraneous fires. Its bleak surface has been converted into a fruitful soil by the action of the atmosphere, and the industry of man; and rich plantations of coffee, and immense corn fields, now adorn the plains, which were formerly covered with liquid lava. But towards the south, the country becomes sterile and scorched, from the great scarcity of springs, and its proximity to the volcano; and the Pays Brulé, or *burnt land*, extending over a surface of 12,300,000 square toises, is one continued desert. Bounded on the south by the ocean, and rising with a lofty ascent, it is terminated on the north by the burning dome of the volcano. Its barren and fuliginous aspect, and the dreary solitude which reigns around, without a habitation to break the uniformity of the prospect, presents a frightful picture of desolation.

Volcano.

Since Bourbon was first known, the volcano has never ceased to disquiet its inhabitants; and from actual observations since 1785, it has been ascertained, that it regularly vomits lava, at least twice every year, and that in nine of these eruptions, the lava has reached as far as the sea. But should this volcano, which, we have every reason to believe, has already traversed the whole island, make another tour, and renew its devastations in some other quarter, this desolate region might easily be recovered, and rendered habitable and fertile.

In the line of contact of these two mountains, which runs from N.E. to S.W. the ground rises on both sides with a gentle ascent from the sea. In this line are the Plaine des Cafres, and the Plaine des Palmistes, through which lies the only road of communication between the opposite sides of the island, and which, by way of eminence, is called the *Plain*. The Plaine des Cafres is very unequal, and is rather a number of flats rising insensibly one above the other, than a level plain. Its highest elevation is 4,800 feet above the level of the sea, while its lowest is only 3,600. It is little better than a desert. A tree is scarcely to be seen. A few tufts of shrubs are its only productions, and the more elevated places are absolutely bare, or covered only with heath. On the N.E. lies the Plaine des Palmistes, which forms a striking contrast to the sterility of the Plaine des Cafres. It is every where covered with the most luxuriant verdure, and is watered by the river Séche, which traverses its surface in a serpentine direction, and receives from its sloping sides many tributary streams. This plain resembles an immense circle, surrounded on every side, except towards the ocean, by a rampart rising gradually from the centre to the height of 1,800 feet above its base, and 2,700 above the level of the sea. It received its name from a species of tree with which it abounds, and concerning which a circumstance is mentioned by M. Bory, which is particularly worthy of observation. We give it entirely upon that gentleman's authority, and in his own words. "Si l'on est assez heureux pour surprendre ces hautes montagnes dans un moment de calme profond, et lorsque tous les vents semblent retenir leur haleins, on pourra verifier l'observation suivante, qui me parut si singuliere que je n'osai pas d'abord m'en rapporter a moi meme. Je consultai, a ce sujet, l'exact M. Hubert, qui m'a assuré avoir remarquér comme moi, que les frondes flexibles des *palmistes*,* lorsque la paix des airs le permet, se dirigent par un mouvement insensible vers le milieu de l'île; il faut etre tres attentif pour saisir cet ordre apparent, qui est peut être dû a l'attraction que les montagnes exercent: † cet ordre est a peine visible sur un seul arbre, c'est sur l'ensemble de tous les palmistes vus a-la-fois, qu'il faut le chercher. J'ai apercu, au milieu d'un de ces calmes profonds, des risées indociles echappées d'une gorge agiter toutes les tetes qui se trouvaient sur leur route; bientot apres les feuilles balancées, perdant peu a peu leur agitation, reprenaient leur direction premiere." *Voyage*, &c. tom. ii. p. 389.

Near the middle of the island is a lake about half a mile in diameter, surrounded on every side by a sloping bank, which rises nearly 600 feet above the level of its centre. This lake is called by the inhabitants the Grand Etang, or *Great Pond*. It is between 30 and 40 feet deep; and has no other source of supply than the rains which fall in its neighbourhood. During a dry season it is sometimes completely empty, which must be produced entirely by evaporation, as it has no other outlet whereby it can discharge itself. A few swallows are the only inhabitants of the place. A thick cloud, in general, rests upon its surface, and the atmosphere around is always foggy and unhealthy.

Bo

Riv

The rivers of Bourbon find no resemblance in those of any other country. Instead of sheets of water flowing in a level and uniform course, and refreshing the vallies which they embellish; these are torrents, sometimes weak, sometimes strong, tumbling down the sides of the mountains through deep gulleys, which they have formed, or widened, during a long succession of ages; and such is the impetuosity with which they rush through their channels, that huge masses of rock are carried down in their current, whose crash is heard long before they appear, and which, accumulating at their junction with the ocean, form at each side of their mouths lofty and impassable ramparts. These torrents have so furrowed the declivities of the mountains, that one cannot traverse the island, in a line parallel to the horizon, without encountering precipices at every step. The sides of their channels, in many places, form an angle of from 45 to 70 degrees, and those of some of the principal rivers are about 600 feet in elevation. The chief rivers are, *riviere de St Denis, riviere Séche, riviere de l'Est, riviere du Mat*, and *riviere des Rem-parts;* yet none of these are supplied by springs which issue from the earth, but are indebted entirely to the rains which fall in their neighbourhood, and to the snow and mists, which continually rest upon the summits of the mountains.

Divid into el parish

St Deni

In Bourbon the towns, and the only appearance of cultivation, are confined entirely to the coast, and its neighbourhood; the interior is uninhabited, and even uninhabitable. It is divided, according to M. Bory, into eleven parishes; St Denis, St Marie, St Suzanne, St André, St Benoit, St Rose, St Joseph, St Pierre, St Louis du Gaul, St Leu, and St Paul, each having a town of the same name. St Denis is the capital of Bourbon, and the residence of the governor, the supreme council, and other public functionaries. This town is little better than a village. The church is its only edifice, and the houses are low, and built chiefly of wood. The streets are bordered with trees, and covered with large flints; and resemble, in every respect, many of our common roads in Britain. It is divided into the high and the low quarters; the latter of which is situated at the mouth of the river, and consists merely of a row of shops, possessed by the poorer classes of the inhabitants. The other is built a little behind at the bottom of the hills, and is inhabited entirely by wealthy colonists. The batteries and public magazines are well supplied with cannon and military stores, and the ordnance captured last year at this place, and St Paul's, amounted to 120 pieces of cannon of all calibres, besides a large quantity of shot, shells, cartridges, and powder, and about 900 muskets with bayonets.

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* Fausel nut—the *Areca* of Linnæus.

† This singular fact cannot possibly arise from the attraction of the mountains, as Bory imagines. We suspect that the true explanation of it will be found in some optical illusion. Ed.

The town of St Rose lies in the bosom of a small bay, and consists entirely of a few cottages, with the church in the centre. It has a convenient harbour, and is most favourably situated for commerce. Separated from the rest of the island by a torrent often impassable, and living on the declivity of the volcano, at the very name of which the other islanders tremble, the inhabitants of this parish have acquired a character analogous to their insulated situation, and have contracted a fierceness of manners, which, however, is now beginning to be softened by their intercourse with the other parts of the country. They are almost entirely ignorant of the use of money. All their bargains are made in merchandize; and those who supply them with arrack, blue cloth, flints, pipes, powder, and lead, which are their principal necessaries, receive in return coffee and honey.

The parish of St Joseph is also, in a manner, separated from the rest of Bourbon. A furious sea, and inaccessible coasts; and a stony and ungrateful soil, producing only ferns and impenetrable forests, were the obstacles which long opposed every attempt to colonise it. *Marons*, or runaway slaves, wild goats, and a few other animals, were of late its only inhabitants: and it was but in 1785 that this parish was first established, and peopled with men of colour. Born free, from father to son, these men look upon themselves as whites. They will not suffer the least reflection upon their complexion, and consider it an unpardonable outrage to be called a man of colour, or a free black. Too proud to stoop to labour, which they think dishonourable, they live chiefly upon the produce of the rivers and the woods; and habituated to every privation, they are at the same time active, indefatigable, and idle. Just, but severe towards their slaves, they are inflexible and cruel to the marons when they fall into their power. They are, however, open, full of candour, incapable of deceit, hospitable, and generous.

St Pierre is a considerable village, but widely scattered by reason of the gardens, with which every particular property is surrounded. Some of the houses are neatly built of stone, and have double stories. Cotton, of an excellent quality, was formerly the principal commodity of this parish; but since colonial produce has become of so little value in the European markets, their attention is now chiefly confined to the cultivation of corn, two-thirds of which are annually exported to the Isle of France. Here the climate is warmer, than in any other part of the island; and from the nakedness of the country, the form of the habitations, the greatness of the temperature, and the clearness of the sky—rarely overshadowed by a cloud—one might imagine himself in Arabia, or in the centre of Africa.

St Paul is the most considerable village next to St Denis, and the best peopled parish of the island. It is surrounded on the land side by a semicircular rampart, extending nearly six miles from the Pointe du quaie Houssaie to the Riviere des Galets, and varying in height from 100 to 250 feet. The town is built at the bottom of a steep mountain, on both sides of a fresh water lake. This lake might easily be converted into a safe and commodious harbour; and for this reason, it ought to have decided the French government, when they took possession of Bourbon, to fix the capital of the island at St Paul. The roadstead has good anchorage ground of a hard sand, reaching two miles from the shore. Its figure is semicircular, a little open, and it is well protected on the north by a cape, which forms the mouth of the Riviere des Galets, and on the south-west by rocks and the Pointe du quaie Houssaie. The other parishes have a fruitful soil, and are in general well cultivated, but possess nothing deserving of notice, except St Leu, which is famous for its coffee, its wealth, and the inhospitable disposition of its inhabitants.

Climate.

The climate of Bourbon varies greatly in different situations. While the inhabitants on some parts of the coast are exposed to all the inconveniences of the tropical heats, those on the more elevated regions enjoy all the richness and coolness of the temperate zones; and in the Plaine des Cafres the cold is so intense, that it is very dangerous to enter upon it when in the least degree overheated. An icy and sudden wind from the neighbouring mountains may in a moment prove fatal to the constitution; and the bones of men and of animals, which are to be found in the cavities by the way side, attest its pernicious influence. No where, however, is the climate so hot, as might be expected from the latitude of the island. The air is pleasant and wholesome, and the inhabitants, in general, live to a very great age. They are refreshed by continual breezes from the mountains, and the snow, which accumulates during the winter upon these heights, furnish, during the summer, a plentiful supply of water to the parched herbage of the plains. But Bourbon owes its salubrity, in a great measure, to the hurricanes, which purify and cleanse the atmosphere of every deleterious and noxious ingredient. They have, in general, one or two of these every year, which seldom exceed two days in continuance. They happen between the months of December and March; and it has been observed by the inhabitants, that the want of these periodical storms is invariably succeeded by unwholesome seasons. Their approach is prognosticated by a frightful and hollow noise in the mountains, accompanied by a dead calm, both at sea and on shore; and the night preceding the storm, the moon appears of a crimson colour. By these prognostics the Bourbonese are enabled to make a timely provision against their consequences. Though it is an opinion, that earthquakes are the attendants of volcanoes, and are most frequent and violent about the commencement and extinction of their combustion, yet this island has been seldom visited by any of these terrible concussions; but has enjoyed, in this respect, more tranquillity, than many countries less exposed to volcanic eruptions.

Hurricanes.

Soil.

In Bourbon, the soil is no where of any great depth, there being immediately underneath a black burnt rock, resembling the Pays Brulé: but though not deep, it is wonderfully fruitful, producing corn, coffee, sugar, cotton, and cloves in great abundance; and, in 1763, upon an extent of 125,909 acres of cultivated land, there was gathered as much cassava as would feed their slaves, 1,135,000 pounds weight of corn, 844,100 pounds of rice, 2,879,100 pounds of maize, and 2,535,100 pounds of coffee, which last that our government should have allowed this nest of pirates to remain so long unmolested. But the blow was only retarded to make it more sure; and an expedition under the command of Colonel Keating, and Commodore Rowley, sailed from India in June 1810 for the reduction of Bourbon. After a gallant defence by Colonel Susanne, the French commandant, the object of the expedition was accomplished on the 8th of July following, when this island surrendered to the British arms; and paved the way for the conquest of Mauritius, the last and most important colony of France. See *Mod. Un. Hist.* vol. xi. p. 159.; Bory de St Vincent, *Voyage dans les Quatre principales Iles des Mers d'Afrique;* Viscount de Vaux's *History of Mauritius and the neighbouring Islands;* and *A Pamphlet* by an Officer of the late Expedition against Bourbon. See MAURITIUS. (*p*)

Taken by the British.

BOURBON LAKE, a lake of North America, about 80 miles long, and nearly of a circular shape. It is formed by the waters of the Bourbon river, which rises near the northern sources of the Missisippi. Furs of every kind are obtained in great abundance round this lake. There are no large islands upon it; and, owing to the coldness of the climate, few animals are to be found in the adjacent country. (H)

BOURBONNOIS, one of the former provinces of France, now forming a part of the department of the Allier. The temperature of the province is exceedingly mild; and it abounds in corn, hemp, fruit, wines, pasturage, and wood. It possesses also mines of iron and coal, and numerous mineral springs, the principal of which are at Bourbon-l'Archambaud, Bardou, Neris, Vichy, Saint-Pardou, Trauliere, &c. Near the first of these places there are rocks which contain veins, with small stones, which have such a great resemblance to diamonds, that they are often mistaken for them by connoisseurs. See *Journal Œconomique de Septembre* 1756, p. 6. (o)

BOURDALOUE, LOUIS, a celebrated French preacher, was born in Bourges, on the 20th of August 1632. In the sixteenth year of his age, he entered into the society of the Jesuits. The first eighteen years that he spent in it were employed partly in prosecuting his private studies, and partly in teaching rhetoric, philosophy, and divinity. And in every thing he gave striking proofs of the strength and superiority of his genius. Possessing talents that equally fitted him for the attainments of science and the eloquence of the pulpit, he was for a while uncertain to what profession he should devote himself. But some sermons that he delivered while lecturing on practical theology, met with so much applause, that his superiors prevailed on him to apply himself wholly to the office of a preacher. In the commencement of his career, he had the good fortune to be known to the king's daughter, who, having heard him and liked him, honoured him not only with her kindness, but with her confidence: of which she gave an affecting proof, in selecting him to be with her on her death-bed, that she might receive from him the consolation which he was so well qualified to impart. After preaching some years in the country, he was, in 1669, called to Paris, where his appearance in the pulpit surpassed all the expectations which had been previously entertained of him. People of all ranks crowded to the place where he exhibited, and were charmed with his oratory. Nor, though his reputation was so suddenly acquired, did it at all degenerate, as generally happens in such cases. It increased from day to day: and the oftener he was heard, the stronger was the desire to hear him. He preached for thirty-four years either at court or in Paris: he preached to the great, to the learned, and to the multitude: to all of them he gave the highest satisfaction and delight, and with all of them he enjoyed uninterrupted and growing popularity to the very close of his life. To a zealous performance of his duties in the pulpit, he added very laborious duties of a private nature, by acting the part of a father-confessor to those who were affected by his discourses in the church, and needed consolation for their sorrows, or counsel in their difficulties. He sometimes spent five or six hours in succession, listening to the acknowledgments of the penitent, and imparting to them with equal prudence and faithfulness, the instruction which they required. And on such occasions he condescended to the poorest and the meanest that applied to him; and often sought out those who were unable to come to him, that he might enquire into their circumstances, and administer to their spiritual necessities. His personal conduct formed a counterpart to his public character, distinguished as it was by the habitual exercises of piety and virtue, by uprightness and benevolence, by modesty and contentment, by a mild temper and agreeable manners, by a contempt of the world and the love of peace and good order, by fidelity to his friends, forbearance to his enemies, and charity to all. This assemblage of good and amiable qualities made him a great favourite with all who knew him; and accordingly all ranks courted his company, feeling pleasure in his society, and thinking themselves honoured by his acquaintance. After having spent so many years in the discharge of his ministerial functions in the metropolis, he was anxious to go to some place of retirement, where he would have sufficient leisure to attend particularly to his own spiritual concerns, and to prepare for death, which could not now be far distant. For this purpose he petitioned for leave from the superiors of his order to abandon Paris, and retire to some house in the country. This request, however, though made repeatedly with great earnestness, and in very affecting language, was ultimately denied: And in obedience to that ecclesiastical authority to which he had always made conscience of submitting, he remained in Paris, continuing to labour in his ministerial office with his wonted diligence and fidelity, preaching especially for the benefit of the hospitals, the poor, and the prisoners; and thus sanctifying himself, by promoting the comfort and happiness of others. He fell sick on the 11th of May 1704, and, sensible that his departure was at hand, prepared himself according to the usual forms of his church, but with much piety and resignation of spirit, for that awful event. It is curious but melancholy to observe a man of so much understanding, and so much knowledge of Christianity, talking in such circumstances of offering himself up as Jesus did, a sacrifice to appease the wrath of God, and of consenting to suffer the pains of purgatory. Yet such was the language that he actually held. "It is highly reasonable," said he, "that God be fully satisfied; and at least in purgatory I will suffer with patience and with love." He expired on the second day after he was taken ill, in the 72d year of his age; and his death excited universal and unfeigned regret. Different opinions have been entertained of the merit of his sermons. While some have given them the highest praise, others have spoken of them as far below mediocrity; and one writer is so outrageous in his censure, as to say, that they are nothing more than empty harangues. It is evident that a man who was so popular as Bourdaloue, in such circumstances as those in which he was placed, and preaching before such audiences as he addressed, must have possessed great talents, and produced excellent discourses: though, it must be admitted, at the same time, that popularity depends, in a great measure, on the voice, the appearance, the manner, and the character of the preacher, as well as on the extent of his knowledge, and the strength of his understanding. But really he who can peruse Bourdaloue's sermons without admiration, must be destitute either of taste or of candour. They have some great faults, but their excellencies certainly predominate. Dr Blair gives the following character of them, which appears to be tolerably just: "Bourdaloue is indeed a great reasoner, and inculcates his doctrines with much zeal, piety, and earnestness; but his style is verbose, he is disagreeably full of quotations from the fathers, and he wants imagination." The reader will find some good remarks on Bourdaloue's sermons in Hill's *Life of Blair*. (τ)

BOURDEAUX, or BORDEAUX, in the department of the Gironde, and capital of what was formerly the province of Guienne, is one of the most ancient and flourishing cities in France. It was known by the name of *Burdigalia*, in the time of the Romans, by whom it seems to have been originally founded, or at least greatly enlarged; and of whose architectural improvements it still retains many distinct vestiges. Besides a number of ancient statues, medals, and inscriptions, which have been found at different periods within its limits, we may mention, as its principal antiquities, a temple dedicated to the tutelary deities of the place, of which some very lofty columns are to be seen; the lower gate, which is supposed to have been built in the time of Augustus; the palace of Gallienus, of which only two gates and a few walls remain; and an oval amphitheatre, 227 feet in length, and 140 in breadth. In the fifth century, it was in the possession of the Goths; and was repeatedly ravaged and burned during the savage incursions of the Normans. It was afterwards governed by sovereigns of its own, who were titled Dukes, Counts, &c.; but, by the marriage of Eleanor, only daughter of William the tenth, and last Duke of Guienne, to Louis VII., surnamed the Young, it was united, with its province, to France. This lady, however, having been divorced by the French king, in 1152, and afterwards marrying Henry of Normandy, who succeeded to the crown of England, Guienne, with its capital Bourdeaux, became subject to the princes of that country, by whom it was greatly enlarged and beautified. To this city Edward, the Black Prince, conducted his royal captive, John, King of France, after the battle of Poictiers, in 1356; made it the seat of his court for the space of eleven years; and raised it to a high degree of splendour and renown. After having been nearly three centuries in the possession of the English, it was reunited to France by Charles VII., who established a parliament in the place, and built the Chateau Trompette, to defend the mouth of the harbour. In the year 1548, a violent insurrection was excited throughout the whole province, by the grievance of a salt tax; and, in the heat of their resentment, the inhabitants of Bourdeaux seized and massacred the king's lieutenant M. de Monems, together with one of his friends who attempted his rescue. The constable Montmorency was dispatched with a body of troops, to suppress these tumultuous proceedings; but, though the inhabitants of Bourdeaux submissively opened their gates to receive him, he refused to enter their city, except through a breach in the wall; posted his soldiers with artillery at the entrance of every street, and treated it in every respect as a town taken by storm. He declared its privileges to be forfeited; seized its bells and records; condemned to death 100 substantial tradesmen; imposed a fine of 2000 livres; suspended the parliament from the exercise of its functions; compelled the magistrates, with 100 of the principal citizens, to dig the body of Monems out of his grave with their fingers, that it might be solemnly interred in the church of St Andrews; commanded the town house to be thrown down, and a chapel to be erected in its place, where public prayers should annually be offered for the soul of the murdered governor. Bourdeaux suffered very severely during the civil wars in France, in the time of Henry IV.; but was preserved for the crown by the good conduct of Marshall Matignon, in opposition to all the powers of the League.

The town is situated on the west bank of the Garonne, about 40 miles from its mouth, and where the river is between 300 and 400 toises in breadth. The tide flows as far as the city, to the height of twelve feet, so as to be navigable for vessels of a considerable burden. The harbour is large and commodious; and the quay, which borders the river, is of very great extent, but neither kept in good repair, nor built with any degree of regularity or magnificence. Indeed the vessels cannot be brought close to the pavement, but require to be loaded and unloaded by the help of barges. It appears, from the following lines of Ausonius, that the town was formerly of a quadrangular form—

Quadrea murorum species, sic turribus altis
Ardua, ut aerias intrent fastigia nubes;

but its modern appearance is that of a crescent or semicircle, of which the river forms the side. It is surrounded by an old wall, with twelve gates, and three forts; but the ramparts are in a ruinous condition, and all its means of defence are of very little importance. The streets chiefly run towards the harbour, and are in general narrow and inelegant; but, since the end of the American war, the place has undergone great improvements, and many new streets have been built, both in the city and suburbs, in a hand-

Bourdeaux.

some style, and on a regular plan. The Chateau Trompette, which was built by Charles VII., and afterwards regularly fortified by the celebrated Vauban in the reign of Louis XIV., and which occupied nearly half a mile of the shore, was purchased from the late king by a company of speculators, for the purpose of being taken down, in order to build with the materials a fine square, and several splendid streets, to the number of 1800 houses; but this plan, which, it has been said, would form one of the finest additions to a city, that is to be seen in Europe, has not yet been completed. The finest parts of the city are the Place Royale, where the hackney coaches have their stand, and where there is an equestrian statue in bronze of Louis XV.; the quarter of the Chapeau Rouge, which consists of noble and regular buildings; and the suburb of Chartron, where the principal merchants reside. Bourdeaux contains an academy of belles lettres, of painting, of sculpture, of architecture, of commerce; an university, founded in 1441; thirteen parish churches; a number of religious houses; and several magnificent public buildings. The principal of these are the churches of the Dominicans, Carthusians, and Monks of St Bernard; in which last is the tomb of Montaigne, who was born, lived, and died at the castle of Brêde, in the neighbourhood of Bourdeaux; the cathedral, which contains two remarkable bas reliefs, deserving of the traveller's inspection; the exchange, from which is the finest view of the harbour and the country on the opposite shore, furnishing one of the richest water scenes of which France can boast; and the theatre, which is one of the most magnificent in Europe, in the shape of the segment of an oval, occupying a space of 306 by 165 feet, with the principal front at one end, where there is a portico of twelve very large Corinthian columns running along the whole extent of the front, from which portico is the entrance, by a noble vestibule, to the different parts of the theatre, to an elegant concert room, and to various saloons for walking and refreshments; and the whole of which building was raised at the expence of £270,000. There is a new tide corn mill, which is remarkable for its size, the solidity of the building, and the beauty of the workmanship. There is a large canal formed of hewn stone, with walls four feet in thickness, which leads under the building, and admits the tide, as it comes in, to turn the water wheels; and there are several other equally well built canals, which conduct the water into a large reservoir, from which it flows back, as the tide returns, and gives motion to the wheels, in an opposite direction. This immense structure was erected by a company; and the cost was estimated at £350,000. The whole of the houses, and public buildings of Bourdeaux, are built of a white stone, which adds greatly to the splendour of their appearance. The habitations and establishments of the principal merchants are upon a very expensive scale; and their mode of living is luxurious and dissipated in the extreme. The three chief articles of commerce in this city are, the cod and whale fisheries; the fitting out of armaments, and furnishing of stores for the French American settlements, for which it must at present have very little demand; and the disposal of its brandy, wines, liqueurs, especially the vin de Bourdeaux, generally known by the name of claret, and produced in the neighbouring country, called *Pays de Medoc*. It exports also fruits, resin, pepper, honey, cork, &c. and particularly vinegar to the amount of five or six thousand tons annually, &c.; and manufactures serge, printed calicoes, stockings, delf-ware, white glass, and cordage. Its wines particularly are an incalculable source of wealth to the inhabitants. It is calculated, that, in the district of Bourdeaux, there are produced *communibus annis* 200,000 tons of wine; of which 100,000 are exported, 40,000 consumed in the town and its vicinity, and the remaining 60,000 in the territories of France. The quantity of brandy is more variable; sometimes amounting to 20,000 hogsheads annually, and at other times only to 12,000 or 15,000. Among the principal productions of Bourdeaux, may be mentioned the article hemp, of which, within a space of 12 or 15 leagues round the town, about 20,000 or 25,000 quintals are raised every year, part of which is exported to Rochéfort, Rochelle, and Bayonne; and the rest is employed at Bourdeaux, in manufactories of linen or cordage. Its refined sugars are accounted the best in France in point of quality; and possess a firmness and consistency, which render them peculiarly suitable for exportation. The great trade of Bourdeaux, especially in wines and brandy, attracts an immense number of foreign vessels, so that there are commonly about 100 in the harbour at once, and sometimes during its fairs not less than 500. The greater number of these are from Holland and Great Britain; and those belonging to the latter power, besides taking wines to the amount of 6000 tons, and brandies to the amount of 400 hogsheads annually, carry away, vinegar, prunes, raisins, turpentine, chesnut, paper, corkwood, honey, capers, olives, and anchovies, in exchange for woollen stuffs, tin, lead, coals, herring, leather, butter, cheese, salt beef, tallow, and painting materials. It has two great fairs in the year, which were finally established by Charles IX. in 1565, and each of which lasts about 15 days; but the resort to these free markets, and its commercial prosperity in general, are said to have greatly declined since the revolution. It contains about 100,000 inhabitants; is distant from Paris 89 leagues, and from Rochelle 27; and stands in N. Lat. 44° 50′, and W. Long. 0° 39′. It has produced several great men; by one of whom, the poet Ausonius, it is celebrated in these lines,

> *Burdigalia, est natale solum; clementia cœli*
> *Mitis, ubi et riguæ larga indulgentia terræ,*
> *Ver longum, brumæ que breves, juga frondea subsunt, &c.*

See Arthur Young's *Travels in France*. (q)

BOURGES, the *Avaricum* or *Bituriges* of the ancients, a town of France, formerly the capital of the province of Berri, but now the chief place of the department of the Cher, is situated on the river Erve at its confluence with the Eure. According to Livy, this was one of the most ancient cities of Gaul. Louis XI., who was born in this place, founded the university in 1466, and conferred several privileges on the town. From the central situation of Bourges, it was declared, at the assembly of the states at Tours in 1484, as the most convenient place in the kingdom for internal commerce, and fairs were established here by the king, with the advice of both French and foreign merchants. A dreadful conflagration, however, in which 7500 houses, inhabited by 9500 families, were consumed, ruined the commerce of Bourges, which was afterwards transferred to Lyons. The cathedral church is reckoned one of the most beautiful Gothic edifices in Europe; and the college of the Jesuits, which contained the parish churches and many public buildings, was an extensive and magnificent building. The only commerce which is now carried on at Bourges, is merely that which is necessary for the subsistence of its inhabitants. It possesses, however, a few manufactures of linen cloths, woollen stuffs, and stockings. Population 15,340. E. Long. 2° 23′ 26″, N. Lat. 47° 5′ 4″. See Necker's *Administration des Finances*, tom. i. c. xi. (π)

BOURGOGNE, one of the former provinces of France, now forming a part of the department of the Cote-d'Or. The soil is very productive, and the country better peopled than any other part of France. Mines of iron are found in every part of the province, and coal and marble are obtained in abundance. (*j*)

BOURIGNON, ANTOINETTE, a celebrated enthusiast, was born at Lisle, in Flanders, in the beginning of the year 1616. She died at Franeker on the 30th of October, 1680. Her life was not distinguished by any thing very brilliant, or very interesting; and therefore a minute and regular narrative of its events is wholly unnecessary. But certainly a lady who left behind her eight or ten octavo volumes on divinity; influenced by her doctrine the faith both of clergy and laity; and was deemed a fit object of hatred and persecution by sensible men, because she talked and acted like an enthusiast, deserves a more particular notice than what is implied in telling that she flourished in the seventeenth century, and left the world at the age of sixty-four. A few circumstances, therefore, shall be mentioned, to give the reader some tolerable idea of Madame Bourignon. 1st. At her birth she had all the appearance of a monster. Her forehead was chiefly covered with black hair, her upper lip was fastened to her nose, her mouth stood wide open, and, altogether, she seemed to be such an unnatural production, that for some time it was a subject of consultation whether she should be allowed to live. These deformities were, in some measure, got the better of; but she never acquired any thing approaching to personal beauty. In her mother's breast they excited a degree of aversion and disgust, which soon appeared in harsh treatment of her, and which occasioned such altercations between the parents, as deeply to affect the mind and the future fortune of the unhappy child. 2d, Though Antoinette had none of those feminine graces which kindle love in the other sex, yet she did not want admirers when she grew up, and admirers too who proffered their hand along with their heart. She was successively courted by a French merchant, a peasant's son, and the nephew of a parson near Lisle; and they were so violently enamoured of her, as to exceed all the bounds of moderation in prosecuting their suit. All this is probably to be accounted for, by that superiority of understanding, and that patrimonial fortune which she possessed, and which are frequently as powerful invitations to matrimony, as the charms of female beauty. But Antoinette had the fortitude to resist every offer that was made to her, from whatever quarter it came, and however strongly it was urged. The surly and ill-natured demeanour of her father towards her mother, gave her an early disgust at marriage, and she very soon began to pray that she might never enter into that state. Besides she was not very old when her mind became tinctured with enthusiasm; and this enthusiasm expressed itself, partly in renouncing every desire of sensual pleasure, and devoting herself to a state of immaculate purity. For while she prayed, "May God grant that I may never marry," she added, at the same time, "give me the grace to become thy spouse." If this last petition, the impious raving of a fanatic, was fulfilled, as she imagined it to be, it may be easily believed that she not only never conceived one thought inconsistent with the most perfect chastity, but that she actually possessed the gift of *penetrative virginity*, by which, like the Virgin Mary, she created in every person that beheld her, a total insensibility to the gratifications of the flesh. 3d, Although Madame Bourignon had obtained this complete victory over the sexual passion, her views were not wholly elevated above the world. Avarice was a ruling feature in her moral character. She tried to shew a contempt for earthly possessions; but she could not succeed in making that attainment. And she exhibited throughout the whole of her life, a fanatical attachment to spiritual things, combined with a sordid and inveterate love of money. At first she resolved to give up the property which devolved to her at the death of her parents; but before she had made this sacrifice to piety, she changed her mind, and took possession of her patrimony. And she justified this step, which in her case had a worldly aspect, by alleging, that otherwise the property might get into the hands of those who had no right to it, or those who would make a bad use of it, and that God had intimated to her that she should need it for promoting his glory. In all her emergencies, indeed, she applied to God for direction, and she uniformly obtained the answer that she wished. But in this instance, the advice which she received was rather more extensive than was suitable to her dispositions, or her intentions. To retain the estate, she readily agreed, but to use it for the glory of God was beyond her purpose. She lived parsimoniously —she bestowed nothing in charity, and her fortune, therefore, rapidly increased. Increasing in wealth, she increased in her attachment to it, and obstinately persisted in refusing to give one mite to the poor, because, as she said, she had consecrated her substance to God, and all human things are inconstant. While, however, she had no compassion for the needy, she had a strong affection for her own doctrines; and expended a certain portion of her money in publishing books, for the edification of the world, and in supporting some idle hypocrites, who attended her as her disciples. This was advancing the divine glory. But it was also a plea for the woman's avarice, and a mean of gratifying her spiritual pride. 4th, Madame Bourignon lived in persecuting times; and it could not be expected that one so active in propagating heretical opinions, could escape the rigours of intolerance. But the persecutions that she suffered

Bourignon.

were owing, not so much to the bigotry and illiberality of others, as to the unamiable temper of her own mind, and the extravagant and hurtful fanaticism of her own conduct. She was totally destitute of the humility that became her—she was of a morose and gloomy disposition—she judged most uncharitably of the spiritual condition of all who did not adopt her peculiar tenets—she was hard-hearted to the poor, though she affected to love, and to be united to their Father in heaven—she was most unforgiving to those who had robbed her of the merest trifle—and her enthusiasm was carried so far, and had such an effect, that the little girls of an hospital, in which she was governess, were all engaged, as they themselves believed and declared, in a carnal connection with the devil. Considering these circumstances, and considering the arrogance and masculine zeal with which she endeavoured to enlighten those who were far more enlightened than herself, it is not wonderful that she was involved in lawsuits, and difficulties, and sufferings. She did not, however, want protectors and patrons. The baron of Latzbourg preserved her from her enemies, at a critical period. And M. De Lort, superior of the oratory at Mechlin, who became a proselyte to her system, if system it can be called, patronised and cherished her while he lived; and what pleased her more, though it evidently occasioned her some trouble, left her heir of all his property when he died. 5th, She was a perfect enthusiast—one of the most extravagant visionaries that have ever appeared in the Christian world. From her infancy she daily conversed with God, in the literal sense of that expression—she offering up prayers, or putting questions to him, and he answering her, by speaking inwardly to her heart, so that she knew what he said to her as distinctly as if a fellow creature had been talking to her. Besides this *sweet conversation*, as it was called, with God, she enjoyed some extraordinary revelations, which, as often happens, in similar cases, are wonderfully useless, and wonderfully absurd. In one of her extacies, she was permitted to behold Adam in the form that he had before the fall, and to see the manner, in which he himself, possessing the principles of both sexes, was capable of procreating other men! How surprising that her *penetrative virginity* allowed her to indulge in such a contemplation! The contemplation, however, was purely abstract. When she made any proselytes she felt the same kind of throes and pangs in producing those spiritual children, that are experienced in natural labour, and the violence of her pains was proportionate to the impression which her doctrine made upon their minds. These, and many other instances of a similar nature, that might be adduced, shew that she was an enthusiast of the sublimest order. 6th, It may be easily supposed that her doctrines are supremely wild and extravagant. A sample of them may be seen under the article ANTICHRIST: and for the rest, the reader's curiosity can be gratified only by perusing her own works, and the writings of her apologists. Her opinions were adopted by considerable numbers, both in this country, and on the continent. Besides the striking peculiarities of her doctrine, there were several circumstances in her condition which tended to promote her credit. Of these, the most remarkable was, the appearance of a comet at her birth, of another when she commenced author, and of a third when she died. Surely, said the superstitious, this was a prophetess. Her disciples were most numerous in Scotland: indeed her tenets gained so much ground there, as to become an object of great jealousy with the church. In four different meetings of the General Assembly, (1700, 1701, 1709, 1710,) measures were adopted for checking the growth of this pernicious and blasphemous heresy. Dr George Gardin, a minister of Aberdeen, was deposed, in 1701, for teaching its "damnable errors." And all entrants into the ministry were required, as they are at this day required, to abjure and renounce Bourignian doctrine. See the *Works of Madame Bourignon; Bayle's Dictionary*, art. *Bourignon; Snake in the Grass*, by Mr Charles Lesley, preface; *Bourignonism Detected*, by Dr Cockburn; and *An Apology for Mrs Antonia Bourignon*, supposed to be written by Dr G. Gardin above mentioned. (τ)

BOURN, a town of England, in the south of Lincolnshire, situated in a valley upon a small stream. The remains of a priory, and of a castle, with large irregular works, said to have been formed by Oliver Cromwell, are still to be seen. There is here a mineral spring of some note. There are also some tanneries; and the little commerce which it carries on is by means of vessels of ten tons burthen, which carry goods to Spalding, Boston, &c. Number of houses in 1801, 282. Population 1474. See Gough's *Camden's Britannia*. (*w*)

BOURO. See BORRO; and Stavorinus' *Voyages to the East Indies*, vol. ii. p. 301; also Labillardiere's *Voyage*, vol. ii. p. 308.

BOUTON, or BOOTEN, or BUTTON, one of the Celebesian Isles, situated about twelve miles to the south-east of Celebes. The island is large, woody, and tolerably high. It is about thirty miles in length and eight broad, stretches from north to south, and is separated by the straits of Bouton from the smaller Island Pangasane, which lies between it and Celebes. The King of Bouton, to whom the neighbouring islands are subject, was in alliance with the Dutch East India company, who paid him an yearly salary of £32 : 14 : 6, that he might assist in the extirpation of all the clove trees in this and the adjacent islands. With this view a serjeant, styled the Extirpator, was sent out every year by the company; and attended by guides and interpreters provided by the king, he laid waste all the clove trees in Bouton and its dependent isles. The sovereign of Bouton, however, tired of the system of annual destruction, refused to lend his usual assistance, and in the year 1775, when Stavorinus visited the island, the Company withheld their salary, in order to force a compliance with their wishes.

To the east of Bouton is an immense cluster of little islands called Toucan-bessis, connected or surrounded with rocky shoals. The passage between Bouton and this cluster is very dangerous. "Along the shore of Bouton," says Stavorinus, "there is no danger to avoid but the land itself, but in the narrowest part of the passage begins a large bay, which runs into the land west and north, into which there

nger of being drawn by the currents which
e bay, if the point opposite to the Toucan-
pproached too near in calm weather; and if
nce fallen into the bay, there is no getting
e west monsoon sets in again. The go-
Banda was once detained a whole year in
ous gulf, which, on this account, received
f Divaal, or Mistake Bay." The capital
is Cullasusurf, which is situated on the
ll about a mile from the sea, and surround-
lls. According to Bougainville, the in-
who are small, and of a dark olive com-
ltivate rice, maize, yams, and other roots,
oa-nuts, citrons, and pine-apples. They
considerable commerce in pearls, cloths,
The inhabitants, who are Mahometans,
and faithful. They work a kind of co-
ton stuff, and obtain their spiceries from
l Banda. See Stavorinus' *Voyage to the*
s, vol. ii. p. 297—301; and Bougainville's
(H)

a well known offensive weapon, which has
in war and hunting from times of the most
tiquity. Although the invention of the
first sight, extremely obvious and simple,
plication of a missile body along with it,
e use of it more complicated. Hence the
s of savages are entirely unacquainted with
ies, though they possess weapons appar-
ore difficult construction.

rm and substance of the bow have been
iversified in different countries: wood,
steel, have all been successively adopted;
st, from convenience, is in most general es-
In Tartary, Persia, and other eastern re-
ws are manufactured from the horns of
pe, and beautifully ornamented. They are
composed of wood and horn, two pieces
ngth being applied parallel to each other,
ether by catgut, and then covered with
h bark of a tree, which receives suitable
s, and a coat of varnish. The Laplanders
frame their bows of two flat pieces of
fir glued together; and in England, the
ws are constructed of yew or cocoa wood,
of ash, or some other elastic wood, glued
k.

ure of the bow has undergone many altera-
judge from the coins and sculptures of the
was straight in the middle, and curved at
the modern Tartar bow unstrung, nearly
an incomplete ellipse, and is recurved until
lmost meet. The Saxon bow was partly
t that of our English predecessors straight.
it is not improbable that the fashions of
ountries have, at various periods, resembled
; and we find in fact both the figure of the
v, and the loose play of the string being
in notches, among some relics of those
tions which claim the highest antiquity.
w of the ancient Greeks and Romans was
, that of the Tartars is still so; and a
iminutive people in the southern parts of
one little more than two feet long. The
ng bow was six feet in length, and that of the South American savages is scarcely shorter. Those modern nations, whose cavalry are armed with the bow, use it short for convenience; though it is certain that the force and range of the arrow are augmented by the length of the bow.

Bow

The quality of the bow-string is of much consequence, and we are told that battles have been lost or gained by its imperfections. Probably the sinews of animals, or thongs cut from their hides, were first employed, as catgut is now by the eastern nations. But instead of forming a thick and strong cord of a single piece, a number of small filaments, bound together in different places, constitute the string. The long hair of animals, and even that of women, was anciently converted to bow-strings, whence a temple was erected at Rome, dedicated to Venus the Bald. Thus Julius Capitolinus observes, *Prætereundum ne illud quidem est, quod tanta fide Aquileienses contra Maximinum pro senatu fuerunt, ut funes de capillis mulierum facerent quum deessent nervi ad sagittas emittendas, quod aliquando Romæ dicitur factum. Inde in honorem matronarum templum* Veneri Calvæ *senatus dicavit.* Analogous facts are related by Cæsar and Dio. The substance most approved of by the moderns for bow-strings is hemp; for though catgut be tough and strong, it is too liable to be affected by the temperature of the weather.

The arrow has invariably been made of light reeds, or splits of board pointed with harder wood, bone, or metal, according to the facility with which these substances could be procured by the bowmen; or barbed in certain countries, so as to inflict a more dangerous wound. The arrow of the ancient English archers, as at the battle of Agincourt, was a full yard in length; that of some modern South Americans, exceeds five feet. The whistling arrow, which produces a sound, from an enlarged hollow head containing holes, is said to be used by the Chinese for making signals: and we read of an entertainment given to Henry VIII. in 1515, where "the arrows whistled by craft of their head, so that the noise was strange, and great, and much pleased the king and queen, and all the company."

Such are the bow and arrow in their simple state. Their power and effect depend on their peculiar construction, and the skill of the archer combined. But in the use of this instrument, the skill of the moderns seems to have declined on the European continent, and in Britain. The range of an arrow's flight is here under 200 yards; but there was lately a Turkish ambassador in London, who, in displaying his strength, shot to the distance of 480 yards; and a recent traveller mentions a random shot by Hassan Aga, a Turkish governor of Athens, which, on measurement, he found to be 584 yards. In accounts of the ancient English bowmen, we read of arrows reaching a mile at three flights. Much depends on early education and continued practice; and it has always been a received opinion, that in youth alone the rudiments of archery can be learned.

The bow and arrow are extensively used at the present day, and this weapon anciently held a distinguished place in warlike operations. But now the only civilized nation having numerous and regular troops armed with the bow, are the Chinese. In all others it is gradually giving place to fire-arms, by which it will soon be totally supplanted. In China, however, [illegible] only, and not the modern improvements in gunnery are known; and the [illegible] adherence of the people to the customs of their ancestors, will long preserve the bow as a warlike weapon. The power of the bow is estimated by weight: thus, in describing one as a sixty or seventy pound bow, it is meant that the power required in bending it is equal to sixty or seventy pounds. The weakest bows used in the army are of fifty pounds: the common weight is eighty or an hundred, and [illegible]. A strong attachment prevailed for the English long-bows, from the service of which it had proved in battle; and it was not totally eradicated in Britain until the seventeenth century.

To render the effect of this weapon still more deadly, the point of the arrow has been imbued with poison, so deleterious in its nature as to occasion instant death. This is not a new invention; for, independent of what is observed by others of the ancients, Justin the historian mentions poisoned arrows as known in the time of Alexander the Great. *Cum venisset ad urbem Ambigeri regis oppidani invictum ferro audientes, sagittas veneno armant. atque ita gemino mortis vulnere hostem a muris summoventes plurimos interficiunt.* (Lib. xii. cap. 10.) Pliny the naturalist specifies a certain tree, from which the Gauls prepared a poison for the arrows with which they shot stags. The art is still preserved among the South Americans, who blow arrows from a tube, as well as shoot them from a bow. A credible author relates an instance of an Englishman having killed a native in a fit of passion at Macassar. Though the king pardoned his offence, the other Europeans resident there, apprehensive that they might themselves afterwards become the objects of vengeance, insisted that he should suffer that punishment which the laws of the country decreed. The king assented, but willing to save the culprit from unnecessary pain, he himself resolved to be the executioner with a poisoned arrow, and desired the culprit to name the spot to which it should be directed. He chose the great toe of the right foot, which the king struck with an arrow blown from a tube with wonderful precision and dexterity. Though two European physicians instantly exercised all their skill, and performed an amputation far above the wound, the man died in their hands. Experiments with poisoned arrows by other intelligent Europeans prove that they occasion instant death, and that a South American preparation with which they were imbued, operates with greater speed and certainty than the most deadly poison. Arrows charged with combustible substances for setting fire to houses and shipping, were extremely common of old; and have been used by the nations of India in repressing the encroachments of the British during last century. (*c*)

BOW, Cross. There is only one way of altering the bow from its original simplicity, which is by combining it with a stock. It is then bent by means of a lever, and the arrow is discharged along a groove. The Chinese have a kind of cross-bow, invented, as they affirm, about the commencement of the Christian era, which can discharge ten arrows at once. This, so far as we can understand, is accomplished from the arrows lying in parallel grooves above each other.

The cross-bow is a powerful and destructive weapon, and, like the common bow, was employed both in war and hunting, and on horseback as well as on foot. It discharged heavy arrows, called bolts, or quarrels, having a square iron head. The conquest of Ireland, in 1172, is said to have been greatly facilitated by the terror which the cross-bow of the English inspired, the weapon being previously unknown in that kingdom. Richard I. was an experienced cross-bowman, and had killed several persons by arrows from his own hand. But he himself at last fell at the siege of Chaluz, by a dart from a cross-bow, at which the recorder of the event testifies little regret, " neque enim lex ulla æquior est, *quam necis artifices arte perire sua.*" Brompton, *Annales*, p. 1278. Cross-bowmen formed a numerous corps in the ancient armies. At the battle of Cressy, in 1346, the first rank of the French army consisted of 15,000 cross-bowmen. At present we are imperfectly acquainted with the power of the cross-bow; but if we can credit the older authors, and, indeed, on considering that the greatest mechanical force may be employed in bending it, it must be very great. The arrow flies from it with equal precison, whence, long after being disused in war, the cross-bow was still retained in hunting. But although some authors of more modern date magnify the art of their contemporaries, it was much on the decline in the seventeenth century. Wood, in the *Bowman's Glory*, relates, that " in March 1661, 400 archers, with their bows and arrows, made a splendid and glorious show in Hyde Park, with flying colours, and cross-bows to guard them. Several of the archers shot near twenty score yards with their cross-bows, and many of them, to the amazement of the spectators, hit the mark." The cross bow was prohibited by successive acts of Parliament, from the year 1508, and penalties imposed for even being in possession of it. Paul Hentzner, however, who travelled through Britain in 1598, observes, that he saw in the armoury of the Tower of London, cross-bows, and bows and arrows, of which the English made great use in their exercises.

Not only the men of former times, but women also, used both the bow and cross bow for amusement. In the ancient illuminated manuscripts of this country, are represented ladies of rank with their attendants hunting, and carrying a bow and quiver. Margaret, the daughter of King Henry VII. and queen of James IV. of Scotland, killed a buck with an arrow, on a hunting party, at Alnwick, on her progress thither, in 1503; and Queen Elizabeth, and the countess of Kildare in her train, were equally successful with the cross-bow. Now, though the long bow, and other kinds, are still warlike weapons among the less civilized nations, yet, these, as well as the cross-bow, are principally used for amusement in Europe. Societies are formed on the continent for practising the latter, and instead of bolts or arrows, bullets are discharged.

The revival of the long bow, for warlike purposes, has been recommended by some zealous admirers of its effects in antiquity, and they conceive would in the elections of the sovereign princes. In early times, too, they were commanders of the army, as well as counsellors of the monarch. Prior to the reign of Peter I., they were the prime ministers of state, and viceroys in the various provinces, acting almost without controul. Without the consent of the *Boyar-skoi dvor*, or court of boyars, no law could be enacted, insomuch that all the decrees of government were introduced with this preamble, "By command of the Czar, and with consent of the boyars." Peter, however, abrogated this court, in room of which he instituted the directing senate. This senate consisted at first of nine boyars, and was raised to the rank of the supreme college of the empire. With regard to the etymology of the word boyar, writers are not agreed; but in the dictionaries it is generally interpreted a lord, a person of quality, or a nobleman; and sometimes it denotes a soldier. *Boyarin*, in the Russian language, signifies a gentleman, a person of distinction, or a master of a family; and the boor usually styles his master *boyarin*, or contracted, *barin*, even though he has neither rank nor estate; and his spouse *boyarina*. The task-service exacted from the boors by their lord, is called *boyarschtschina*. See Tooke's *View of the Russian Empire*. (μ)

BOYLE, Robert, was the seventh son, and fourteenth child (the last but one) of Richard Boyle, Earl of Cork, by his second wife, Catharine, daughter of Sir Geoffrey Fenton. His father, a man of more than ordinary ability and address, commonly called the Great Earl of Cork, was a zealous promoter of the Protestant and English interest in Ireland, where he exerted himself with such success in the improvement of his domains, and in the defence of them at the time of the Catholic rebellion, that the Protector Cromwell is said to have declared, on surveying them, if there had been an Earl of Cork in every province, it would have been impossible for the Irish to have raised a rebellion. Of his numerous family, the greater part obtained distinction of rank, and many were eminent in endowments as well as condition. Robert Boyle, however, has secured to himself the principal place in the consideration of posterity. If Bacon pointed out the true way of science, Boyle was the first of our philosophers who struck into it, and pursued it with very considerable success, leaving a track which was to conduct his successors into the high way of discovery. His name is always coupled with panegyric, and that in a strain above what the occasion will appear to warrant, if we look no farther than into the simple narrative of his life; but upon a careful examination of his works, the eulogium will hardly seem overstrained; for though he may have gained the summit of fame sooner, and with less difficulty, sustained as he was by rank and fortune, than might have been practicable without such support, yet he is indebted to his merit and exertion alone, for the place he still holds in the first rank of philosophers. Time, and subsequent discoveries, have confirmed his reputation, and borne the most honourable testimony to his skill and industry in conducting laborious and ingenious experiments; his fidelity in relating them, and his sagacity and discrimination in reasoning from them. His biographers have recorded little that deserves particular notice of his childhood, and the infancy of the philosopher is less likely to afford prognostics of future greatness, than that of the poet. The growth of reason is more tardy than that of imagination, and with less display of blossom.

Robert Boyle was born at Lismore, in the county of Cork, and province of Munster, in the year 1627. When he was about seven years old, he lost his mother,—a loss which he mentions in terms of much regret, in his memoirs of the early part of his life. He was reared in the cottage of his nurse, who was instructed to bring him up in the same habits of exercise, and plain diet, as if he were her own child; but this precaution did not prevent his constitution being always delicate and feeble. He contracted one unfortunate habit under the humble roof of his nurse, which he might have escaped in his paternal mansion: Having learned to stutter by imitation, he never had the perfect use of the organs of speech; for though he avoided stammering, he could never speak without hesitation and pauses. Of the moral habits of his childhood, the most remarkable was a strict regard to truth, which his father said he never knew him to violate. This circumstance renders it probable, that his mind was impressed deeply at a very early age with religious principles; and the same may be inferred with more certainty from the uniformity of his opinions through life, which do not appear to have departed at all from the established creeds, from the style of his religious productions, and from his zeal in the support and propagation the Christian religion. In the course of his life, he caused translations of the New Testament to be made and published in the Irish, Welsh, and Malayan languages, and contributed liberally to the translation of the New Testament into Turkish, by order of the Turkey Company. His donations to the propagation of the gospel in America exceeded 300*l*., and by a codicil to his will, he left a revenue of 50*l*. per annum for lectures, consisting of eight sermons in the year, which were to be preached in illustration of the evidences of Christianity, and in opposition to infidel principles. His zeal, however, though it was sufficiently ardent and active to prompt liberal patronage, was uncontaminated with bigotry and intolerance. Bishop Burnet has remarked, that the expression of his sentiments was never pointed with severity and indignation, unless against the abettors of the persecution of religious opinion.

His education commenced in his father's house, under the direction of one of the Earl's chaplains, assisted by a French gentleman who lived in the family. At the age of eight years, he was sent to Eton College, together with his brother Francis, and placed under the care of Mr Harrison. Sir Henry Wooton was at that time Provost of the College. In his eleventh year, his studies were interrupted by an attack of ague, when romances, such as Amadis de Gaul, and other works of amusement, were put into his hands, and the pursuit of learning was suspended, till his Latin was almost entirely forgotten. Upon his recovery, he was boarded in the family of the rector of Stallbridge, in Dorset, not far from his father's seat there, and very soon after he was entrusted to the care of M. Marcombes, phial which his servant unfortunately let fall among them. Of the importance of his annual communications, no just estimate can be formed from a cursory notice of the subjects: the Philosophical Transactions are enriched with many of them, and for the entire catalogue, reference must be made to his works. Though Mr Boyle engaged in controversy, in vindication of his first discoveries, he appears rather to have shunned than sought occasions of that sort. In the conflict betwixt the members of the Royal Society, and the adherents to the old school of philosophy, he took no greater share than was unavoidable, from the nature of his pursuits, and the necessity of justifying the results of them when they were given to the public. This was a duty which he owed to himself and to science; and in the discharge of it, his candour, love of truth, purity, and simplicity of motive, were so apparent, that none of the acrimony, of which the combatants were sufficiently liberal, fell upon him personally. In the controversy that was occasioned by the pretensions of Mr Valentine Greatraks, he did not think fit to stand forth as a public disputant on either side, though, as appears from his correspondence with Mr Henry Stubbe, his thoughts were much occupied about it. Mr Greatraks was the forerunner of those ingenious gentlemen who have more recently persuaded themselves that they had the power of effecting cures without the aid of medicine, by means of certain sympathies, whose action they have named animal magnetism. His integrity was undoubted; his disinterestedness could not be questioned, as his practice was gratuitous; and many facts, said to be well-attested, were produced in evidence of his extraordinary powers. Mr Boyle was prepared, by his habits of thinking, and his chemical pursuits, not to reject any fact, however new to his own experience, which offered itself to his notice, with sufficient credentials of its truth, for no better reason than his own inability to explain the natural process on which it depended; and his sentiments on the present occasion ought to be considered as the consequence, not of the credulity either of ignorance or superstition, but of the habitual modesty of the philosopher. His opinion on the subject of alchemy should be regarded in the same light. Having steadily opposed the theoretic philosophy, it is not surprising, that, at the dawn of chemical discovery, he did not think himself warranted in pronouncing the transmutation of metals impossible, because irreconcileable with any of the crude theories of which he had shewn the futility. That he was far from a conviction of the impossibility of such a transmutation, may be inferred from his having employed his influence in procuring the repeal of the statute of Henry IVth, against the multiplying of gold and silver.

Mr Boyle continued to reside at Oxford during the Protectorate; and though after the Restoration he was distinguished by many flattering attentions, both from the king and his ministers, the Lords Southampton and Clarendon, he declined making any use of their patronage with a view to power or emolument; and though he might confidently have looked forward to the possession of the highest ecclesiastical honours, he refused to comply with pressing solicitations to enter into holy orders. His resolution on this subject remained fixed; though, upon the death of Dr John Meredith, he was nominated by the king Provost of Eton College. He chose rather to decline an appointment for which he thought taking orders a necessary qualification. The piety of his character leaves no doubt that this reluctance proceeded from his high sense of the importance of clerical duties, his devotion to scientific labours, and his opinion of the unlawfulness of becoming a member of such a profession, without proposing to resign himself to its service.

After a residence of 14 years at Oxford, Mr Boyle removed to London, in the year 1668, and established himself in the house of his sister, Lady Ranelagh, in Pall Mall, with whom he remained till her death, and survived her only one week. Notwithstanding his resolution to accept no situation of high trust, either in church or state, he was induced, in several instances, by his zeal for the promotion of Christian knowledge, to accede to several appointments of less distinction. In 1662, a grant of the forfeited impropriations was obtained in his name, but without his knowledge, which he applied to the service of learning and religion. He was also appointed Governor of the Corporation for Propagating the Gospel in New England. With a view to furthering the same design in the East, he was many years a Director of the East India Company.

In 1664, he was elected into the Society of Royal Mines; and, in 1680, he was elected President of the Royal Society, but declined the honour; and, in a letter to Mr Hooke of Gresham College, assigned his particular feeling on the subject of oaths as the reason of his refusal.

Mr Boyle did not possess a firm constitution. In his eleventh year, his studies were interrupted by ague; as early as his 21st year, he had a severe fit of the stone, from which disease he suffered much in the course of his life; and in his 44th year, he was shaken by a paralytic distemper, which was at length subdued by strict regimen. The general state of his health was indeed such, that he found it necessary to adjust his clothing by the varying states of the thermometer. Notwithstanding every precaution, at the age of sixty, he became sensible of a rapid decay of strength, and judged it therefore necessary to make a more economical arrangement of time, and to concentrate his labours. With this view, he made known, by public advertisement, his reason for declining the greater number of visits with which he was honoured, and caused a board to be fixed to his door, which expressed the hours on which visits were received. And such was the simplicity and modesty of his character, that this singularity drew upon him no imputation of vanity and ostentation. Mr Boyle had the satisfaction of seeing the liberties of his country placed upon a lasting basis; he survived the æra of the Revolution about two years. His sister, to whom he was very warmly attached, and with whom he principally lived for nearly 47 years, died on the 23d of December, and himself on the 30th, 1691. His body was interred near that of his sister, at the south side of the chancel of St Martin's in the Fields.

Boyse.

Of his person, which was tall and slender, with a pale and sickly countenance, two portraits remain, one taken in his 38th year, which is copied in the title-page of the quarto edition of his works; the other was executed in the latter part of his life. It was in the collection of Dr Mead, and is supposed to be the same that is now placed in the meeting-room of the Royal Society.

Mr Boyle, regarded as a philosopher, appears entitled to a place in the very first rank. He shone as the morning star of physical science; and not only were several important discoveries, the result of his very accurate experiments, but machines of the greatest value, and of constant use in experimental philosophy, were either invented or improved by him. Of this number were the air-pump, the thermometer, and the hydrometer.

As a man of letters, his attainments were considerable. Dr Burnet, who preached his funeral sermon, declares, that his knowledge was of prodigious extent; that he was master of the learned and of several oriental languages, and deeply versed in mathematical science. If we may judge, however, from his publications at a more advanced period, of some of his juvenile productions, written in a very faulty style, his taste never reached the true point of refinement. If, indeed, as Mr Evelyn pretends, his Seraphic Love was composed when his imagination was kindled with the love of a mortal, the daughter of the Earl of Monmouth, as he informs us, its production is very well accounted for. His "Occasional Reflections on several Subjects," which were written in his youth, were published when he was near forty, and furnished Swift with an occasion of satire in his Meditations on a Broomstick, in the manner of Mr Boyle. Swift has been severely censured for this attack by many of Boyle's admirers; but if the authority of the name of Boyle was great, it was the more necessary that a false and puerile taste should not find protection in his example. Mr Boyle, whose income was liberal, was a generous and disseminating patron. Dr Robert Sanderson, afterwards Bishop of Lincoln, was among the number of his beneficiaries. In consideration of the losses which he had sustained in the royal cause, Mr Boyle settled upon him an annual stipend of 50*l.* A condition was annexed, that he should prepare a number of cases of conscience for the public, and ten lectures were in consequence published, which had been delivered in Latin, and were now in their present form dedicated to his patron. The piety of Mr Boyle was fervent and active, and its operation was always liberal and benevolent. It has been remarked, in proof of the strength of his religious feelings, that a short pause always preceded his expression of the name of God. It may be doubted, however, whether he thought it necessary to make such a punctilious indication of that veneration of his Maker, which was better displayed in every action of his life; and it is not unlikely that this report originated in a mistake which is very well accounted for, by the habitual pauses and impediment in his speech: the letter *g* was probably one of difficult enunciation.

The manners of this great man are described, such as his letters would lead us to suppose, mild, amiable, and unassuming, displaying an unwillingness to inflict pain himself, and a disposition to protect the defenceless from rude and unfeeling raillery. Such was the delicacy of his constitution, that, notwithstanding every aid of regimen and strict abstinence, he was often very seriously indisposed, subject to great depression of spirits, and did not survive the 65th year. He lived, however, long enough to leave to posterity a lasting monument of his industry, fidelity, and success, in the pursuits of science; of his zeal and consistency in the service of religion, and of a character adorned with the best social virtues.—See Birch's *Life of Boyle*, (London 1743) the materials of which were taken principally from Mr Boyle's account of himself, under the name of Philocetus, and Burnet's Funeral Sermon. (J. M.)

BOYSE, Samuel, a man not more distinguished by his poetical genius, than by his vices and misfortunes, was born in Dublin in the year 1708. His father, Joseph Boyse, was a dissenting clergyman in that city, revered for his piety and learning, and beloved by all who knew him for the native simplicity and dignity of his manner, and his genuine benevolence of heart. After receiving the first rudiments of his education at a private school in Dublin, young Boyse was sent, at the age of eighteen, to the university of Glasgow, probably with a view of studying for the clerical profession. He had scarcely been a year in Glasgow, however, when his studies were interrupted, and his views in life entirely changed, by an unfortunate attachment which he formed for the daughter of a tradesman in that city, whom he married before he had attained his twentieth year. This connection, instead of reclaiming him to habits of virtue, seems only to have opened new temptations to his natural dissipation and extravagance. He became involved in pecuniary difficulties, which obliged him to quit the university abruptly, and to return to Dublin along with his wife, and a sister whom she carried along with her. His follies had produced no change in the affections of the good old man, who, with an indulgence more amiable than prudent, not only relieved him from his present necessities, but continued to support him and his family, without appearing to have urged him to one exertion to procure an independent livelihood. The son was as mean as the father was indulgent. His time, instead of being employed in the pursuit of any useful profession, was lost in the most frivolous trifling; and his thoughtless extravagance at length reduced his father to such indigence, that, during his last illness, he was supported entirely by presents from his congregation; and after his death, was buried at their expence. Deprived by his father's death of his usual support, he repaired to Edinburgh, where his poetical genius soon procured him some respectable patrons. His first publication was a volume of *Poems on several occasions*, which gained him considerable reputation, and recommended him to the favour of the Countess of Eglinton, a lady of extensive accomplishments, and the avowed patroness of men of genius. Upon the death of the Viscountess Stormont, who was likewise a lady of taste in the sciences, and a lover of poetry, he wrote an elegy, which he entitled *The Tears of* *the Muses*. With this mark of respect to his deceased lady, Lord Stormont was so highly pleased, that he directed his agent in Edinburgh to give the author a very handsome present. Through the friendship of this nobleman, and the Countess of Eglinton, he was introduced to the Duchess of Gordon, a lady whose acquirements and love of literature led her to cultivate a correspondence with the most eminent poets then living. The prospects of Boyse now began to brighten; his reputation as a poet was established; and the warm interest which his illustrious patrons took in his welfare, might have raised him to high respectability, had not their kind intentions been frustrated by his own indolence and infatuation. The Duchess of Gordon procured the promise of a situation for him, which would have placed him beyond the reach of indigence, and gave him a letter which he was next day to deliver to one of the commissioners of customs at Edinburgh. Unfortunately, however, he happened to be then at some distance from town; and the day on which he was to have delivered her Grace's recommendatory letter happening to be rainy, Boyse declined exposing himself to the weather, and never waited on the commissioner till the place was given away. The indigence and distress, which were the necessary consequence of such imprudence, compelled him to leave Edinburgh, and having communicated to his noble patrons his design of going to London, he received recommendatory letters from the Duchess of Gordon to Pope, and to Lord Chancellor King; and from Lord Stormont to his brother the Solicitor General, afterwards the Earl of Mansfield, and to other persons of rank and distinction. Pope happened to be from home when Boyse called upon him to deliver her Grace's letter, and the visit was never repeated. Though he himself declared that he waited upon the Lord Chancellor, by whom he was well received, and with whom he occasionally dined, the truth of this assertion was doubted by those who knew him best; for he was so overawed by the glare of rank, that he could scarcely lift his eye in the company of the great, or take any part in their conversation. It is certain that his indiscretion prevented him from enjoying the benefit of his recommendations; and his miseries soon became so great, as scarcely to be paralleled in the records of literary history. Even those miseries could rouse him to no other exertion than the writing of mendicant letters. Respect to the memory of his father induced some of the dissenting clergymen to relieve him with occasional benefactions. Yet never, perhaps, was there a more unworthy object of charity; for his indolence and indiscretion were even exceeded by his low selfishness and gross sensuality. With the money which he sometimes extorted by a supplicatory letter, he would go into a tavern, order an elegant entertainment, drink of the most costly wines, and thus squander all the money which he had received, without a single companion to participate the luxury, and while his wife and child were starving at home. It cannot be wondered that his friends, wearied out by his perpetual applications, at length withheld contributions which they found to be so ill bestowed. His wretchedness accordingly became so extreme, that he had no clothes in which he could appear abroad; even the sheets on which he lay were sent to the pawnbroker; and he was forced to confine himself to bed with no other covering than a blanket. His mode of writing in this situation was singular enough: He sat up in bed wrapped in his blanket, through which he had cut a hole large enough to receive his arm, and placing the paper on his knee, scribbled, as well as he could, the verses he was obliged to make. He occasionally supplied the want of a shirt, by tying white slips of paper round his neck and wrists; and in this plight he appeared abroad with the additional inconvenience of wanting breeches. In this state of misery he continued for several weeks, preserving himself from absolute starvation by writing verses for the magazines, or procuring occasional benefactions by abject petitions, and the vilest arts of deceit. On one occasion, Dr Johnson collected a sum of money to redeem his clothes from the pawnbroker, and in two days after they were pawned again. He translated well from the French, an employment in which he would have been frequently engaged; but by the time one sheet was finished, he generally pawned the original: if his employer redeemed it, another sheet would be completed, and the book again be pawned; and this perpetually. After spending some years in this forlorn and contemptible state, he was invited to Reading, in 1745, by Mr David Hervey, the late proprietor of the Gentleman's Magazine, to compile *An historical Review of the Transactions of Europe, from the commencement of the war with Spain in* 1739, *to the insurrection in Scotland in* 1745, *with the proceedings in Parliament, and the most remarkable domestic occurrences during that period.* To which was added, *An impartial History of the late Rebellion, interspersed with Characters and Memoirs, and illustrated with Notes*. For this work, which was by no means despicably executed, his necessity obliged him to accept the trifling compensation of half-a-guinea a week. About this time he lost his wife, who is described by Cibber as one of the most profligate and abandoned of women; yet, in a letter to a friend, he affectionately laments her death. After his return from Reading, his behaviour became more decent than formerly, and hopes were entertained of his reformation. The liberality of some of his friends had furnished him with a new suit of clothes, and he appeared to pay some regard to his character. He was employed in translating Fenelon's Discourse on the existence of Deity, when he fell into a lingering illness, which terminated in his death. During this illness, he had the satisfaction to observe his principal poem, entitled *The Deity*, recommended by Fielding and Hervey; the latter of whom, touched by the story of his misfortunes, deposited two guineas with a friend, to be given to him as his necessities required. For this favour, he expressed his gratitude in a letter to Hervey, in which are strongly marked the humility and contrition of a chastised and penitent transgressor. His whole life, indeed, had been a kind of conflict between his depraved inclinations, and those religious principles which, in his early youth, had been impressed on his mind so deeply as never to be effaced. The remorse which he felt towards the close of life, from the remembrance of his former profligacy, is finely described in his interesting poem, entitled, *The Recantation.* Perhaps the return of these better feelings may be ascribed, in a great measure, to a second matrimonial connection, which he formed after returning from Reading, with a woman of low condition, but respectable for her prudence and virtue. Under her care, his character and circumstances were just beginning to improve, when he died in the 51st year of his age, in such poverty as to be buried at the expence of the parish. We have been led into this detailed account of the life of Boyse, not so much from his claim to our estimation as a poet, as from the striking lesson which his history affords,—that no powers of genius will save the victim of indolence and imprudence from merited indigence and disgrace. "The relation," to use the language of Dr Johnson on a similar occasion, "will not be wholly without its use, if it remind those who, in confidence of superior capacities or attainments, disregard the common maxims of life; that nothing can supply the want of prudence; and that negligence and irregularity, long continued, will make knowledge useless, art ridiculous, and genius contemptible."

The poems which Boyse wrote for magazines and other periodical works, are extremely numerous; but from the haste in which most of them were produced, are scarcely worth collecting. His principal poems are "The Deity," "The Vision of Patience," "Ode to Mr William Cuming," "An imitation of Horace and Lydia," "An Epistle to Henry Brooke, Esq.," "A Recantation," and "Albion's Triumph." All of these, except Recantation, and Albion's Triumph, are to be found in Dr Anderson's Collection of the Poets of Great Britain. Nor were the genius or acquisition of Boyse confined to poetry alone. He had likewise a taste for painting, music, and heraldry, with the latter of which he was well acquainted. Had the talents which he naturally possessed, instead of being shrouded in indolence, or prostituted to vices, been employed according to the dictates of reason and virtue, he might have risen to eminence and respectability, and have escaped the almost unparalleled miseries which marked every period of his literary career. (*k*)

BRABANT, formerly a duchy, and one of the provinces of the Catholic Netherlands, now forming three departments of the French empire; is bounded on the north by Holland and Guelderland, on the east by Guelderland and Liege, on the south by Namur and Hainault, and by Flanders and Zealand on the west. It was originally divided into four quarters, viz. Louvain, Brussels, Antwerp, and Bois-le-Duc. Its circumference is estimated at 80 French miles, and it contains 28 walled towns, with about 700 villages. It is watered by several considerable rivers, and tributary streams, the principal of which are the Meuse, the Scheldt, the Dyle, the Demes, the Nethe, and the Aa. The Demes, after receiving the waters of the Ghete, the Dyle, the Senne, and the Nethe, takes the name of Rupel, and discharges itself into the Scheldt. It has also two canals, one near Brussels, which reaches from the Senne to the village of Willebroeck, near which it communicates with the Rupel; and the other joins the Rupel with the city of Louvain.

Brabant.

Brabant has always held the pre-eminence among the provinces of the Low Countries. It was anciently the seat of government, and the residence of the sovereign; and when the general assembly of the states was convoked, the first place and voice belonged to the deputies of Brabant. This province was the original residence of the family of Charlemagne, and was first erected into a duchy by that monarch in the beginning of the 9th century. It continued to be governed, as a separate state, by princes of his family until 1005, when it devolved to Lambert II. Count of Louvain, by his marriage with Gerberge, the sister and heiress of Otto, the last Duke of Brabant. After remaining three centuries in the house of Louvain, it descended by the female line to the dukes of Burgundy, and when united to the other possessions of these princes, formed one of the richest domains in Europe. Under the government of Philip the Good, Brabant soon rose to opulence and distinction; and had it not been drained of its wealth by the ambitious designs of Charles the Bold and his successors, in their wars against Switzerland and France, it might have continued, for a long time, the most opulent country of Christendom. Its fairs were crowded with merchants from every nation, and its manufactures of woollen and linen cloths were in great demand over all Europe. The shout of the Brabanders in the day of battle, gave to their sovereign the title of *the rich Duke;* and Philip de Commines likened the prosperity of this country to the plenty of the land of promise. About the end of the fifteenth century, the sovereignty of Brabant, with the other provinces of the Netherlands, was transferred to the house of Austria, by the marriage of Mary of Burgundy with the Archduke Maximilian. But neither its privileges nor prosperity were affected by the change. The same love of liberty and spirit of industry actuated its inhabitants; and it continued to equal, if not surpass its ancient grandeur under the Dukes of Burgundy. Antwerp had become the great magazine of the northern nations. The Scheldt was covered with numerous fleets, that kept their course to this celebrated port; and, according to Guiccardini, a writer of that age, Antwerp, where all languages were spoken, seemed to be the common city of all nations. But upon the abdication of Charles V., when Brabant came into the possession of Philip II., its disasters and fall commenced. After having deluged it with blood, and despoiled it of those privileges which so many princes had respected, he reduced it to the most degraded state, by civil and religious despotism. Under his successors, commerce and the arts rapidly declined. Its deserted cities shewed only, in their wide extent, the remains of their former prosperity; and the people, dispirited by oppression, scarcely retained the semblance of their ancient greatness. The numerous branches of the Scheldt were seized by Holland, who now, triumphant in war, extorted this humiliating concession from the weakness of Spain; that Antwerp, whose competition she dreaded, should hold no communication with the ocean by the navigation of that river. The commerce of this city, languishing before, was now extinguished. Her exchange was forsaken, her warehouses were empty; and the Scheldt wafted no ves-

[illegible] back from the [illegible] the 17th century, the United Provinces [illegible] possession of the northern part of this duchy, which they called Dutch Brabant, and which formed an integral state of the republic; and after the [illegible] in 1700, the remaining part was ceded by Spain to the house of Austria in the treaty of Utrecht. During the last century, under the dominion of the Austrian emperors, a commercial spirit began to revive, and an attempt was made to animate this and the neighbouring provinces, by opening a trade to the East Indies; but the Brabanders have never been able to rise from their degradation. Their name has seldom been mentioned among the nations, except when, like absolute property, they were transferred from one princely family to another; and though the insurrections occasioned by the arbitrary, but wise measures of the emperor Joseph II. promised them liberty and independence, yet by the revolution in which they terminated, they fell under the more intolerable despotism of an absolute aristocracy. When the French passed the Rhine in the revolutionary war, they established themselves in this country; and by the treaty of Campo Formio in 1797, and that of Luneville in 1801, Austrian Brabant was ceded to France, when it was formed into the departments of the Deux Nethes and the Dyle; and since the annexation of Holland to the French empire, Dutch Brabant has been converted into the department of the Scheldt.

The inhabitants of this province, though now lost to all sense of political independence, yet possess many good qualities. They are remarkably phlegmatic, but humane, good natured, and friendly; and even amid the violence of passion, they are neither cruel nor implacable. But however insensible to their present degradation, this people once possessed high notions of liberty, and enjoyed, under their first princes, personal freedom and security beyond any other state in Europe. Even so early as the 9th century, the constitution of Brabant affords an example of civil liberty, which is scarcely surpassed at this day by any nation in the world. The *Blyde Inkomste van Brabant*, the joyous entry of Brabant, which was the great charter of their freedom, was so named, because the sovereign when he entered upon his government, bound himself by an oath, to govern according to this charter. In it, the conditions are declared, on which the people consented to yield obedience, and on which the prince was willing to reign; and a remarkable clause is added, that if the sovereign should infringe any article of the Joyous Entry, his subjects should be released, from all duty and service, until due reparation should be made. By this instrument, no arbitrary mandate could deprive a citizen of his liberty; his dwelling was sacred, and if suspected of a crime, the officers of justice could not enter his house unless two magistrates were present. If apprehended, he had a right, after a limited time, to call upon his judges to determine whether there were sufficient grounds for his detention. Without the consent and authority of the states, (which consisted of three orders, the clergy, the nobles, and the commons,) no taxes could be imposed, or subsidies granted, and in the latter case the commons could not agree, until they collected the sense of their constituents in the different cities which they represented. The dukes of Brabant and Burgundy, and in later times the princes of Austria, governed acccording to this charter. But in addition to the many privileges which the Brabanders enjoyed, by a decree of the emperors, called the *Golden Bull of Brabant*, it was forbidden to all the princes of the empire, within or without their dominions, to exercise any jurisdiction over the natives of Brabant, unless justice should be denied by their own sovereign. Their personal liberty was equalled by their ingenuity and industry; and while the neighbouring nations knew no other business but that of war, the inhabitants of Brabant were trained to the diligence of trades and crafts. The woollen manufacture in particular, was held in very great esteem. It gave occupation to vast multitudes, and brought great wealth into the country. But while commerce and the arts flourished here, at a very early period, beyond these of any other country, agriculture was not forgotten, and while these were precipitated in the fall of its independence, this last still retains its vigour. Swelling into hills of a gentle ascent, and covered with rich country seats, woods and lakes, inclosed grounds, and champaign fields, Brabant presents a beautifully diversified appearance, and in the greatest part of its extent is both populous and fertile. Every species of agriculture which is common to the country, is in as high perfection as in England, and the best parts of England are even sometimes surpassed. It produces, in great abundance, rye, barley, oats, buck-wheat, potatoes, carrots, turnips, and a species of grass called *sporie*, which is cultivated in no other country except in Guelders and Cleves, and of which they make most excellent hay. Brabant is still famous for its drabs, and other woollen stuffs, as also for its camlets, carpets, and lace. See Shaw's *Sketches of the History of the Netherlands*. Holcroft's *Travels from Hamburgh to Paris*. Foster's *Travels*. Peuchet, *Dictionnaire Universel*. See also NETHERLANDS. (*p*)

BRABEJUM, a genus of plants of the class Polygamia, and order Monœcia. See BOTANY, page 345. (*w*)

BRACCIOLINI, POGGIO, a celebrated restorer of literature in the fifteenth century, was born in the year 1380, at Terra Nuova, a small town in the territory of the republic of Florence. From his father Guiccio Bracciolini, he inherited no advantages of rank or fortune; but for those literary attainments in which he afterwards became so eminent, the circumstances of his birth were peculiarly favourable. The writings of Petrarca and Boccacio were now read with avidity; and the zeal of these great men for the revival of literature, had kindled throughout Italy an ardent spirit of emulation. The city of Florence was particularly distinguished by the enthusiasm, with which its principal inhabitants cultivated and patronised the liberal arts. It became, of course, the favourite resort of the most learned men of the time; some of whom were induced, by considerable salaries and rewards, to undertake the task of

ıetion. Among other eminent scholars,
advantages attracted to Florence, were
ılpaghino, better known by the name of
renna; and Manuel Crysoloras, who had
d by Palæologus, emperor of the East, to
assistance of several European states,
growing power of the Turks; but who,
ımmission so troublesome and unprofita-
hanged the office of ambassador for the
:upation of reading lectures on the Gre-
ȝ. Poggio studied, under Malpaghino,
productions of ancient Rome. Cryso-
s preceptor in the Grecian language;—
anguage, which, as Mr Gibbon finely ex-
gives a soul to the objects of sense, and
ıe abstractions of philosophy." The li-
which Poggio afterwards acquired, is the
ıf the proficiency which he made under
ated masters.

npleting his studies, he repaired to Rome,
out the year 1402; and was introduced
e of Boniface IX., who appointed him
e apostolic letters. He was then about
age; of a lively fancy, and an ardent
. The scantiness of his revenue, how-
red him from the dissipation and licenti-
ch prevailed at the Roman court; and
ours were either devoted to study, or
e company of learned men, from whose
he could derive improvement and de-
was soon deprived of the patronage of
ho died about two years after Poggio's
ome; but was fortunate enough to pro-
vour of Innocent VII., who succeeded
the Papal throne. The most gratifying
influence with Innocent, was the oppor-
lvancing the fortune of his friend Leon-
ıo, whom he introduced to the notice of
ıd whose abilities obtained for him, in de-
npetition, the dignity of apostolic scribe.
ıe violent dissensions which followed the
nocent, Poggio removed from the scene
ın, to enjoy, at Florence, the society of
friends. On this occasion he was hon-
particular regard by Niccolo Niccoli, an
ılar, and a distinguished patron of litera-
rithstanding his retreat from the pontifi-
Poggio still seems to have retained his
chancery, and continued to act as apos-
, both to Alexander V., and to his suc-
XXII. The death of Manuel Cryso-
vas a member of the council of Con-
l forth a warm funeral panegyric from
shed pupil, who likewise perpetuated his
appropriate Latin epitaph.

hn was deposed by the council, and his
ras of course dispersed, Poggio remained
, with the view of embracing any oppor-
night occur, of promoting his own in-
ıt of his friend Leonardo Aretino. The
s which all the adherents of John ex-
Germany, rendered him extremely dissa-
ıis situation, and seem even to have re-
gour of his mind. Literary pursuits
ord him amusement, and for a time his studies were totally suspended. From this uneasy and listless state of mind, he sought relief in an excursion to the baths of Baden; his description of which, in a letter to Niccolo Niccoli, exhibits a most interesting picture of what a fashionable watering place was in the fifteenth century. Soon after his return to Constance, he witnessed the trial and execution of Jerome of Prague, which he describes with a degree of feeling, highly creditable to his candour and humanity. So deep was the interest which he felt and expressed for this great, unfortunate man, that his friend Leonardo became concerned for his safety, and advised him to speak and write more guardedly on that subject in future.

Poggio employed the leisure given him by the vacancy of the pontifical chair, in an expedition of the highest importance to the interests of literature. He had received information that many ancient manuscripts of classic authors were scattered in various monasteries, and other repositories, in the vicinity of Constance; and determined to rescue them from the hands of their ignorant possessors, who allowed them to remain buried in obscurity. In a visit to the convent of St Gallo, he had the happiness to discover a complete copy of Quintilian's works, which had hitherto appeared in a mutilated and imperfect state. He found, at the same time, the three first books, and part of the fourth, of the Argonautics of Valerius Flaccus, and Asconius Pedeanus's comment on eight of Cicero's orations. "Some ideas," says Mr Roscoe, "may be formed of the critical state of these works, from the account that Poggio has left. Buried in the obscurity of a dark and lonely tower, covered with filth and rubbish, their destruction seemed inevitable." Of this happy discovery, Poggio gave immediate notice to his friend Leonardo Aretino, who, in a highly flattering letter, full of the most extravagant expressions of joy, admonishes him to proceed with fresh diligence in his researches. In a monastery of the monks of Clugny, in the town of Langres, he found a copy of Cicero's oration for Cæcina, which he transcribed for the use of his Italian friends. In the course of subsequent journies through France and Germany, he discovered several other orations of Cicero, the loss of which had long been deplored by the learned. These orations were *De Lege Agraria contra Rullum liber primus—ejusdem liber secundus; Contra legem Agrariam ad populum; In L. Pisonem.* To a copy of these orations, preserved in the abbey of Santa Maria, at Florence, is affixed a memorandum, which records the fact of their having been discovered by Poggio. This memorandum, indeed, makes mention of seven orations which he had found in his researches; and, in the catalogue prefixed to the manuscript, besides the works already mentioned, he is allowed the credit of discovering the oration *pro C. Rabirio Pisone; pro C. Rabirio perduellionis reo;* and *pro Roscio Comœdo.* At that time only eight of the comedies of Plautus were known to the classical student. The first complete copy of that author was brought to light by Nicholas of Treves, whom Poggio employed to continue the researches in the German monasteries. It was purchased from Nicholas by the cardinal Giordano Orsini, who refused to permit Poggio, or indeed any of the literati, to transcribe it. On the warm interference of Lorenze de Medici, the cardinal was, at length, induced to entrust the volume to Niccolo Niccoli, who, after copying it, returned it to the cardinal, and thus it came into the general possession of the learned. In the archives of the monastery of Monte Passino, Poggio found a copy of *Julius Frontinus de Aquæductis*, and eight books of a treatise on the mathematics, by Firmicus. From Cologne, he procured the fifteenth book of *Petronius Arbiter*, a small fragment of which he had before discovered in Britain. With the assistance of Bartolomeo de Montepulciano, he discovered the exquisite poem of Lucretius, the poem of Silius Italicus, Lactantius's treatise, *De Ira Dei, et Opificio hominis*, Vegetius *De Re Militari*; Nonius Marcellus, Ammianus Marcellinus, and Tertullian. To his sagacity and diligence in these important researches, we owe likewise the entire works of Columella, the preservation of Calpurnius's *Bucolic*, and the recovery of the works of Manilius, Lucius Septimius, Caper, Eutychius, and Probus.

Poggio remained for some time at Constance, in expectation of preferment in the Roman chancery. It does not appear that he was employed by the new pontiff, Martin V., though he travelled in his suit to Mantua. Here he quitted the Roman court, probably in disgust, with a determination to spend some time in England, whither he had been invited by Beaufort, bishop of Winchester. The coldness of that prelate, however, and the savage manners of the inhabitants, then sunk in the grossest barbarism, rendered him extremely dissatisfied with his situation, and impatient to return to his native land. While thus chagrined with disappointment, he received an invitation to become secretary to the Roman pontiff, an office which the unpleasantness of his situation in England induced him, though somewhat reluctantly, to accept. For some time after his return to Rome, the pontifical court was agitated and alarmed by home dissensions, and foreign wars. An interval of peace at length succeeded, which Poggio employed in the assiduous prosecution of his studies. His first literary production, entitled *A Dialogue on Avarice*, appeared in 1429, and met with considerable approbation. The severe censures, however, which it contained against a new order of Franciscan friars, called *Fratres Observantiæ*, who were as popular with the vulgar for their empty and wild harangues, as they were despised and hated by all sensible people for their ignorance and their vices, provoked the keen indignation of the fraternity. Poggio was not to be daunted by their menaces, or silenced by their expostulations. He retained, to his latest breath, his detestation of these knavish impostors; and in a *Dialogue on Hypocrisy*, published when he had declined far into the vale of years, he again attacks them with the most sarcastic wit, and with the shrewdest observations on the human character. The freedom with which he censures the vices, not of individuals merely, but of whole classes of religious hypocrites, indicates a boldness of spirit, and a warmth of virtuous feeling, in the highest degree creditable to his character. It is on account of this freedom that the Italian editors of his works have suppressed the Dialogue on Hypocrisy, which Protestants have preserved and circulated with industrious zeal.

Soon after Eugenius IV. succeeded to the papal throne, a contest took place between him and the council of Basil; during the whole progress of which, Poggio continued firm to the interests of the pontiff. The contest terminated in the deposition of Eugenius, and his flight to Florence; and Poggio, in attempting to accompany him, fell into the hands of his enemies, who detained him for a considerable time in captivity. Finding the exertions of his friends insufficient to procure his release, he, at length, purchased his freedom by a ransom, which the narrowness of his circumstances rendered extremely oppressive; and immediately on his enlargement, he continued his route to Florence. On his arrival in that city, he found it agitated by violent factions. Cosmo de Medicis, who was the idol and the patron of the people, had been banished by the aristocracy; and the literati, according to their views and connections, espoused the quarrels of the different parties, and waged against each other a war of rancorous invective. One of the most violent of these literary combatants was Filelfo, an avowed enemy of the house of Medicis. Poggio, who had always been warmly patronised by Cosmo, grappled with this fierce adversary, and the contest was long maintained, not with the refined and pointed satire which might have been expected from men of ingenuity and learning, but by the forging of atrocious falsehoods and calumnies, equally disgraceful to themselves and to their cause. Poggio, tired at length of the bustle and contention of public life, determined to spend the rest of his days in retirement; and, with this view, purchased a villa in the pleasant district of Valdarno in Tuscany. The Tuscan government, as a mark of respect to so distinguished a character, who enjoyed no opportunities of amassing much wealth, passed a public act, exempting him and his family from the payment of all public taxes. To compensate for the want of magnificence, Poggio was anxious to dignify his humble mansion, by the taste displayed in its decorations. His library was particularly valuable; and he had a small but exquisite collection of statues, disposed in such a manner, as to constitute a principal ornament of his garden, and the appropriate furniture of an apartment which he intended to dedicate to literary conversations. An enthusiastic admiration of ancient sculpture had prompted him to search out its relics with no less ardour, than he displayed in rescuing from obscurity the precious remains of Greek and Roman literature. He had diligently surveyed the ruins of ancient Rome; and has inserted in the preface to his dialogue *De Varietate Fortunæ*, a catalogue of the relics of Roman architecture, which Mr Gibbon has thought worthy of being introduced into his Decline and Fall of the Roman Empire. Nor were his researches confined to the precincts of Rome. Crypta, Ferrata, Tusculum, Ferentinum, Alba, Arpinum, Alatrinum, and Tiburtum, were ransacked by him for the recovery of monuments of ancient sculpture; and by means of friends, his inquiries were extended to the various countries of Greece. While engaged in these researches, he was requested by a friend to give his opinion whether Cæsar or

Scipio Africanus were the greater man. In compliance with this request, he drew up an elaborate comparison between these two eminent men, and gave his decision in favour of Scipio.

He had not lived long in retirement, when he formed a matrimonial connection with a Tuscan young lady, of the name of Vaggia; a step which, however proper or commendable it might otherwise have been, the circumstances in which he was then situated, rendered highly disgraceful. His treatise on the important question, *An seni sit uxor ducenda*, might satisfy his friends of the propriety of marrying, at the age of fifty-five, a young woman, who had not yet seen eighteen summers. But we cannot conjecture what arguments could justify him in paving the way for such a marriage, by dismissing a woman who had born him twelve sons and two daughters, four of which children were still alive, and who were thus deprived of an inheritance which he had secured to them by a bill of legitimation, and doomed to all the hardships of penury and disgrace. Yet, if we may credit his own assertions, the forlorn situation, into which he plunged the objects of his former attachment, occasioned him but little remorse, and he enjoyed, with his young consort, a happiness unalloyed by the disparity of their years.

The literary reputation of Poggio was now completely established, and widely diffused. His works were eagerly sought after; and several eminent scholars, who had been gratified by the perusal of some of his letters, requested him to prepare a collection of them for publication. The request was too gratifying to be resisted. A volume of his epistles was soon submitted to the inspection of the public; a copy of which is still preserved among the manuscripts of the Riccardi library at Florence. This volume had scarcely been prepared for publication, when he experienced a severe loss in the death of Niccolo Niccoli, to whom most of the letters it contains had been addressed. Poggio paid the last tribute of gratitude to his earliest and steadiest friend, in a funeral oration, replete with the eloquence and pathos of true affection.

Amidst the duties and the cares of domestic life, Poggio still found leisure to cultivate his favourite studies. In 1440 he published a *Dialogue on Nobility*, a work which greatly increased his reputation, by its clear arrangement, its elegant diction, and the abundance of classical allusions and references with which it is enriched: This dialogue was soon followed by another, *On the unhappiness of Princes*; in which, says his biographer, Shepherd, "Poggio dwells with so much energy on the vices of exalted rank, that it may reasonably be suspected, that resentment and indignation had at least as much influence in its composition, as the suggestions of philosophy. His literary spleen is discernible in the sarcastic observations which he introduces, on the indifference with which the rulers of Italy regarded his researches after the lost works of the writers of antiquity; in the detail which he gives of the neglect and scorn which Dante, Petrarch, and Boccacio experienced from the great men of their times; and, in the general observations which he makes upon the contempt with which mighty potentates too frequently regard the labours of the learned. The effusions of moroseness, which occur in this dialogue, are however interspersed with precepts of sound morality, and the historic details with which it abounds, are at once entertaining and instructive."

The prudence, or the merits, of Poggio had enabled him to retain his office as secretary, under seven successive pontiffs; yet he had never been promoted to any of the superior departments in the Roman chancery. But when Tommalo de Sarzano, his particular friend, ascended the pontifical chair, with the name of Nicholas V. new prospects of promotion opened upon him; and, in a congratulatory oration which he addressed to his friend on his preferment, he took care to remind him, that it would be the greatest glory of his pontificate to become the patron of men of genius, and that he himself, with whom he was connected by a similarity of studies, and who had become a veteran in the service of the Roman court, had a peculiar title to expect from his munificence the means of an honourable retirement. His hopes were more than realized by the generosity of Nicholas, who enriched him by liberal presents, and seemed to take pleasure in distinguishing him by peculiar marks of regard. The elation of prosperity appeared to give new energy to the mind of Poggio, and to inspire him with fresh ardour in the prosecution of his studies. These happy effects of his change of fortune, were soon displayed in his *Dialogue on the vicissitudes of Fortune*, which, for sublime philosophical maxims, illustrated by a detail of striking historical events, is by far the most interesting of his compositions, and may well challenge a comparison with any production of the age in which he lived. This dialogue was introduced with a dedicatory epistle to his new patron; and, as a fresh proof of his confidence in that enlightened and liberal pontiff, he soon after published his *Dialogue on Hypocrisy*, already mentioned; the boldness of which, in lashing the vices and follies of the clergy, had it appeared in the time of Eugenius, would probably have cost him his life. His talent for satire was again exerted, at the request of Nicholas, in an invective against Amadæus of Savoy, who, under the title of Felix, persisted in arrogating the honours of the pontificate. Nicholas soon assigned him the more honourable task of translating into Latin the works of Diodorus Siculus, and the *Cyropædia* of Xenophon. The plague, which raged in various parts of Italy, during the celebration of the jubilee in 1450, dispersed the members of the pontifical court, and, during this period of danger, Poggio paid a visit to his native place. It was on this occasion he published his *Facetiæ*, a work which, though the general dulness and indelicacy of its jokes be relieved by some lively sallies and entertaining anecdotes, is as unworthy of the talents of Poggio, as it is discreditable to the taste and the principles of the officers of the Roman chancery, whose "pointed jests and humorous stories" are registered in the *Facetiæ*. In 1451, he published his *Historia disceptativa Convivalis*, with a dedication to Cardinal Prospero Colonna. In this work he institutes a comparison between the professions of medi-

Bracciolini. cine and civil law, both of which he holds up to ridicule.

In the April of 1453, the death of Carlo Aretino produced a vacancy in the chancellorship of the Tuscan republic, to which Poggio was elected by the unanimous suffrage of his fellow citizens. He accordingly quitted the Roman chancery, in which, for fifty-one years, he had held situations of confidence and dignity, and removed his family to the Tuscan capital, where he applied himself, with uncommon assiduity, to the duties of his new office. As an additional proof of the esteem of his countrymen, he was elected, soon after his arrival in Florence, one of the *Priori degli arti*, or presidents of the trading companies; associations similar to those into which the citizens of London are at present subdivided. Neither his advanced age, nor the dignity of his exalted station, could raise the mind of Poggio above that tendency to low and indecent abuse, which had already thrown so deep a shade over the splendour of his talents and his learning. At the time of his removal from Rome, he was engaged in a violent quarrel with Lorenzo Valla, a scholar of distinguished eminence. A young Catalonian nobleman, who had been Valla's pupil, happened to possess a copy of Poggio's epistles. Having got this book, by some means, into his hands, he found on its margin several animadversions on alleged barbarisms in his style. Taking it for granted that Valla must have been the author of these animadversions, he immediately resented the fancied insult in a fierce invective. This attack Valla endeavoured to repel by an equally violent philippic, which he addressed to Nicholas V. under the title of *Antidotus in Poggium*. Poggio replied, and the contest was carried on for some time, on both sides, with all the coarse weapons of falsehood and vulgarity. This disgraceful quarrel, however, did not so completely occupy the mind of Poggio, as to prevent him from devoting a considerable portion of his time to studies of a more agreeable and useful nature. Soon after his final establishment in Florence, he published a dialogue, *De miseria humanæ conditionis;* which was immediately followed by his version of Lucian's *Ass*, his object in publishing which, was to establish a point of literary history till then unknown, that Apuleius was indebted to Lucian for the idea of his *Asinus Aureus*. His last literary work was his *History of Florence*, divided into eight books, and comprehending the transactions of the Florentines, from the year 1350, to the peace of Naples in 1455. His son Jacopo translated this history into Italian, and the translation almost superseded the original, till it was republished in a splendid form by Recanati, and afterwards found a place in the magnificent historical collections of Grævius and Muratori. He had not given the last polish to this valuable work, when death terminated his labours on the 30th of October 1459. The Florentines testified their respect for his memory, by having his portrait hung up in their public hall, and by erecting his statue on the front of the church of Santa Maria del Fiore.

The character of Poggio, though clouded with considerable stains, is upon the whole respectable and amiable. His violent quarrels with some of his literary contemporaries, evince a heart susceptible of keen resentment, yet it was equally susceptible of the more generous feelings of warm and enthusiastic attachment; nor did any spirit of jealousy ever prevent him from proclaiming the merits of his literary friends. The politeness of his manner, the extent of his information, the strength of his judgment, and the playfulness of his fancy, rendered his conversation extremely engaging; and his company was courted by the most distinguished of his countrymen. For the laxity of his morals, and the licentiousness of his conduct, it is but a poor apology, that, in the general depravity of the age, his vices attracted little notice, and gave little offence. His literary accomplishments entitle him to distinguished praise. In the Greek language he acquired considerable proficiency, and with all the Roman classics he was intimately conversant. His Latin composition, though not entirely free from barbarisms, is flowing and graceful; and, when compared with the works of the preceding age, its purity is truly astonishing. See Shepherd's *Life of Poggio*. (μ)

BRACELET, (*Brachiale*, *Braceletum*, Lat. *Bracelet*, Fr.), an ornament worn round the wrist. This ornament was worn at first as the badge of royalty. It wasafterwards used by persons of inferior power, till it at last became a decoration for all ranks. (*j*)

BRACHMANS, Bramins, or Brahmins, called Βραχμανες by the Greeks, constitute the first of the Hindoo casts. The Hindoos have, from all antiquity, been divided into four great tribes, or casts, which do not intermarry, eat, drink, or associate with each other, except when they worship at the great temple of Juggernaut, in Orissa, where they reckon it a crime to make any distinction. The lowest of these casts is that of the Soodra, who, in allusion to their degraded situation and menial occupations, are said to have been produced from the feet of Brimha, when he created the world. The next cast in the ascending scale, is that of the Byse, consisting of merchants, bankers, and shopkeepers. They are called Banians, from their occupation, and being those with whom Europeans are chiefly conversant. This latter appellation was, by the early writers on Indian affairs, sometimes understood as applying to all who professed the Hindoo religion. The Byse were said to have been produced from the belly of Brimha, in allusion to the nourishment and provision which commerce diffuses through the state. The next in order of precedence, is the Ketri tribe, or military cast. This may also be called the royal cast, for all their kings and rulers should belong to it. It was produced from the heart of Brimha, as indicative of the prudence and courage which should distinguish statesmen and soldiers. The highest of all the casts is that of the Bramins, who were said to have been produced from the head of Brimha, to vindicate their superiority over all the other tribes.

Like the Levites amongst the Jews, the Bramins alone can officiate in the priesthood; and the judgements denounced by the Mosaical law, against intruders into the sacred office, are not more terrible than those which the Bramins fulminate against any one who may seem to invade the privileges of their order. They alone have permission to read the Vedas, or sacred books, containing the mysteries of their philosophy and religion. The Ketri, alone, have the distinguished honour of hearing (for they dare not read) these supposed oracles of wisdom: and if a Soodra were convicted of so much as hearing a passage from the Vedas or the Shasters, he would have boiling lead poured into his ears as a punishment for his presumption. It is curious thus to mark the congenial policy of priestcraft in every age, and to observe the analogy between oriental and western superstition. No object in nature is so sacred, in the estimation of a pious Hindoo, as the person of a Bramin: it is regarded as the greatest impiety to fail in the prescribed rules of respect and reverence; and to cause his death, is an inexpiable crime. This inviolability of the Bramins has given rise to gross abuses, and has latterly called for the interference of the British legislature. When a Bramin supposes himself aggrieved, he has been known to take his mother or his child, and, going into the presence of the person who has injured him, to stab them to the heart, unless he received immediate reparation. The person who has driven him to this extremity, is henceforth considered as profane, and viewed by the superstitious multitude with horror and detestation. Sometimes the Bramin chooses to sit in Dhurna, as it is called; that is, he takes his station before the house of his enemy, and threatens to take away his own life if he offers to come out of his house before he has given him the satisfaction which he demands: and as the Bramin never takes such a step without a determination to persist in his resolution, and carry his threats into effect, the unfortunate prisoner is either obliged to submit to perhaps a lawless exaction, or to incur the insupportable odium of having occasioned a Bramin's death. The British government has had the courage to check this absurd practice; and wherever a Bramin is discovered sitting in Dhurna, he is seized, notwitstanding the inviolability of his person, and thrown into prison.

All the learning in India is in the hands of the Bramins; and they were so celebrated for their literary and philosophical attainments in ancient times, that many of the most famous of the Grecian sages travelled into India to perfect themselves in knowledge. However this may be, India does not appear to be the storehouse of knowledge in modern times, and few would visit it, unless they had the prospect of bringing home something else than wisdom. It perhaps would be going too far, to affirm, that we might as well look for the learning and refinements of ancient Egypt among the modern Copts and Mamelukes, as expect the knowledge of the ancient Gymnosophists among the modern Bramins: but certainly we do not meet with any of their literary or scientific productions, which can in any degree command our respect: nay, even their most ancient and venerable records, to which some have been disposed to ascribe an almost unfathomable antiquity, are of very little worth in a literary point of view, consisting of a tissue of incomprehensible allegories, and extravagant fables, which no human sagacity can unravel.

Of their science, we have few or no remains, except their astronomical tables and trigonometrical methods, which have made so great a noise in Europe. Respecting their tables, we have already ventured to give our opinion, (see Astronomy, p. 585), and have claimed for them a high antiquity, upon grounds which we think will not easily be overturned. The Bramins cannot be allowed the credit of the observatory at Benares, as, according to the best accounts, it was erected by the celebrated Mahometan emperor Ackber. It is now pretty well ascertained, that the arithmetical characters now employed in Europe, are of Indian, and not of Arabian origin, as was long supposed. The only learning which seems to be held in any degree of estimation amongst the Bramins, in modern times, is metaphysical subtlety and argumentation. This, indeed, seems to have been the species of erudition in which they have always delighted, as corresponding best with the indolence of their habits, and the acuteness of their genius. Accordingly, we find regular systems of logic and metaphysics, with all the niceties, distinctions, and classifications, which are to be found among the Grecian dialecticians; and it is doubtful whether Aristotle, the father of logic, did not derive both his materials and arrangement from India. A Mahometan historian, as quoted by Sir William Jones, records a curious anecdote corroborative of this conjecture. He mentions, that Callisthenes procured a regular treatise on logic, in the Panjab, and transmitted it to Aristotle; and perhaps curiosity may yet be gratified by discovering, that the Grecian philosopher did not invent, but translate and compile a system of dialectics. One thing is certain, that there is scarcely a notion which has been advanced by metaphysicians, in ancient or modern times, but may be found asserted and illustrated in some of the Braminical writings. We meet with materialists, atomists, pantheists, and intellectualists, if we may so denominate the followers of the subtle and ingenious system of Berkeley. There can be very little doubt that Pythagoras borrowed most of his mystical philosophy, his notions respecting the transmigration of the soul, and the unlawfulness of eating animal food, from the ancient Bramins; for we find all these things particularly explained and enforced by the modern Bramins. They still abstain from all kinds of animal food, except that in some provinces they eat a little fish, but so disguised with rice and condiments, as scarcely to be discerned. The most sacred of all their animals is the cow, and to touch its flesh in the way of food, is regarded as the highest pollution, and involves a forfeiture of cast, even in the case of those who have been involuntarily guilty of this offence. Hence the tyrant Tippoo forcibly converted a great many of his Hindoo subjects to the Mussulman religion, by sprinkling them with cow broth: by this means they were for ever rendered unclean in the eyes of their countrymen, and were glad to seek an asylum from reproach, by embracing Mahometanism.

This veneration for the cow, points out an evident connection between India and Egypt, in which latter country, it is well known that the cow was the principal object of religious adoration: nay, in the account which Bartolomeo gives of a certain Indian festival which he witnessed, we recognize all the rites of Apis. We are at a loss, however, to know what conclusion we are to draw from this fact; and it must still be matter of conjecture, whether India has borrowed from Egypt, or Egypt from India; or whether both have not drawn from one common source.

The Bramins formerly made a great mystery of their tenets; and there was nothing that they shunned so much as communicating their dogmas in philosophy and religion to strangers. The celebrated Ackber, the wisest of all the princes who ruled the Mahometan empire in India, was extremely anxious to get acquainted with the doctrines of the Bramins: for this purpose, he made use of every argument which policy could suggest, to draw from them their hidden stores of knowledge: finding, however, all his efforts unavailing, he at last adopted the expedient of imposing on a celebrated Bramin, at Benares, a youth of the name of Feizi: this he accomplished by persuading the Bramin that Feizi belonged to the cast of Bramins. The youth was joyfully received, and instructed in all the mysteries of Shanscrit literature; when the time, however, approached, that he should depart, and communicate to Ackber the secrets which he had gained, he felt himself detained by a violent attachment to the Bramin's daughter: the ancient sage threw no obstructions in the way of their mutual passion; he even offered his daughter in marriage to Feizi. The young man thinking it ungenerous any longer to deceive his benefactor and instructor, fell down on his knees, and confessed the imposture which had been practised upon him. The Bramin, without uttering a word of reproach, drew a dagger, and was on the point of plunging it into his own breast, when Feizi prevented him, protesting that he would do whatever he required of him; upon this, the Bramin imposed a solemn oath, that he should never translate the Vedas, nor divulge the information which he had clandestinely obtained.

This jealousy with regard to the mysteries of their religion, as far as it is contained in their sacred books, is now completely at an end; and they may be explored by any one who has sufficient curiosity to impel him to the task, and sufficient learning to execute it successfully. But the most unfortunate circumstance in the business is, that, with all these facilities of information, the subject is still as mysterious as ever, and though curiosity has been highly gratified, we are as far as ever from any facts that can lead to a certain or useful result.

It is pretty generally asserted, that no alteration has taken place in the Braminical system for many thousands of years; we, indeed, recognize many of the features described by Strabo and Arrian; but we find others as completely altered. It is no longer true, that the offices of the Bramins are confined to devotion, sacrificing, and philosophy. They engage in all the offices of civil life, and, in many cases, nothing appears so foreign to their habits as literature and philosophy. The Paishwa of the Mahrattas is a Bramin; his troops are composed principally of Bramins; and it has been remarked, that throughout his extensive territories, scarcely any thing is safe from violence and rapacity, but a cow and a Bramin.

It is also universally admitted, that the modern Bramins are grossly ignorant and immoral. Nothing is more common in India, than to meet with a fellow infinitely inferior in point of intelligence to the rudest English clown, yet assuming all the grimaces of sanctity and wisdom, and exacting, as his due, a respect bordering on adoration. This is, indeed, the natural effect of the Braminical system; when a man is sure of honour and respect, independent of merit or exertion, as every Bramin is by his birth and character, it is not easy to see what can stimulate the mind to useful efforts: and it would be in vain to expect moral purity, where ignorance is methodized into a system, and where this order of men is raised, if not by law, at least by the superstition of their countrymen, beyond the reach of justice, and the fear of penal inflictions. Accordingly, Mr Holwell, who stickles as keenly for the pretensions of the Bramins, as if he had been a convert to their faith, allows an observation to escape him near the close of his work, which completely oversets his preceding theory; for he admits, that there was scarcely a murder or a robbery committed in the country, but a Bramin was found to be at the bottom of it. He is careful, however, to observe, that he speaks only of the lowest and most ignorant race of Bramins, and that the higher and more learned orders are to be exempted from the charge. It would perhaps be unfair to include a whole order of men in the sweeping charge of ignorance and profligacy, but we have an unfortunate fact to state, which would lead us strongly to suspect the purity and honesty of any order of Bramins. A learned pundit at Benares, who had been engaged by Captain Wilford to translate one of the Puranas, imposed on his employer, by the interpolation of the memorable story of Satyavrata and his three sons, corresponding exactly with the story of Noah. After Captain Wilford had completely detected the trick, he sent for the pundit to upbraid him, who swore by all that was sacred, that it was no imposition; and in proof of his assertion, brought ten of the most celebrated pundits at Benares, who were ready to swear to the falsehood.

The Bramins, indeed, seem to have degenerated in every respect from their ancestors. Clemens of Alexandria quotes a passage from Megasthenes, a historian who lived in the time of Seleucus Nicator, in which he affirms, that the physical sciences among the Greeks were taught by the Bramins among the Indians. Indeed the physical sciences amongst the Greeks and Indians seem to be much on a par, consisting entirely of absurd cosmogonies, and theories altogether unsupported by experiment. Eusebius, in his *Preparatio Evangelica*, l. 6. c. 10., states a fact very inconsistent with the present practice of the Bramins; he expressly affirms, that they worshipped no images: *χιλιαδες πολλαι των λεγομενων Βραχμανων οιτινες, κατα παραδοσιν των προγονων και νομων, ουτε φονευσιν, ουτε ξοανα σεβουσι.* At present there are not grosser idolaters on the face of the earth, nor are the visible objects of adoration any where so absurd, and ob-scene. It is true, indeed, that in the Vedas and Shasters, the unity of God is often expressly asserted, and illustrated in very sublime and beautiful language: at the same time such a complicated machinery of inferior agents is employed, and the whole is so involved in allegory, that polytheism may be said to be taught in the Vedas themselves. This is the case with the purest systems of ancient mythology: whilst they admit the doctrine of a supreme God as the source of power, and the author of all existence, they uniformly admit the existence of subordinate deities, dependent on the supreme, and employed by him in the government of the universe. This opinion necessarily leads to polytheism: people will always be most ready to worship those deities with whom they consider themselves as most closely connected; and the supposed agents will be adored, as the most likely means of recommending them to the notice of the supreme divinity. In this way the worship of saints in the Romish church almost entirely superseded the worship of the Most High: and in the Indian mythology, Brimha, the chief deity, has not a temple erected to his service, whilst thousands of splendid pagodas are raised in honour of inferior gods.

It has sometimes been said, that religion is merely a political device, invented by statesmen, for the purpose of enforcing obedience to the laws. Without stopping to controvert an opinion which has been so often refuted, we merely observe, that the Braminical religion, has evidently not had its foundation in the policy of princes: it is in all its parts a complete system of priestcraft: it claims for its ministers a dignity and respect far superior to that of kings; and the highest monarchs have been content to bow before them, and to acknowledge their pretensions. This circumstance sufficiently indicates the high antiquity of the order. It was only in the earliest times that the priestly office had such influence in society, as to be able to mould the government and manners of a state. In the remotest antiquity, we are informed, the same person was priest and king. The Braminical system is evidently an improvement on this plan; for by it, the framers have contrived to reserve to themselves the highest place in respect and dignity, whilst they have devolved the cares and business of government, on an inferior order, which must act in all respects according to their directions. The great extent of Hindostan, and its remoteness from the scene of European politics and conquest, preserved this system unimpaired for perhaps several thousands of years. India remained almost entirely undisturbed by the inroads of conquerors, till the period of the Mahometan invasion. Alexander the Great scarcely made the slightest impression upon it, and we make no account of the fabulous exploits of Bacchus. But dreadful was the shock which it received from the Mussulman invaders: they swayed the sceptre, which, in their hands, was a rod of iron, over the greatest part of Hindostan, and they left no art unemployed, which bigotry, policy, or cruelty could devise, to establish Islamism on the ruins of the Braminical religion. By these means the Braminical institutions were considerably affected, and their influence has been still farther impaired by the intercourse with European settlers: they still exhibit, however, a gigantic system of superstition, whose overthrow is rather an object of distant hope, than of sanguine expectation.

See Maurice's *Ancient Hist. of Hindostan and Indian Antiquities* passim; *Asiatic Researches* passim, particularly the papers by Sir William Jones, Mr Colebrooke, and Captain Wilford; *Universal History*, vol. vi.; *Phil. Trans.* No. 268. p. 729; Bartolomeo's *Voyage to India;* Bernier's *Travels*; Lord's *Religion of the Bramins; Ayeen Akberry; Institutes of Menu*, translated by Sir W. Jones. Dow's *Hindostan*, Preliminary Dissertation; Foster's *Travels;* Kendersley's *Hindoo Literature; Sketches of the Hindoos*, anonymous, but giving a very clear and satisfactory statement; *Edin. Phil. Trans.* vol. ii. p. 135; and *Edinburgh Review*, vol. x. p. 455, and vol. xii. p. 41. (*g*)

BRADFORD, from the Saxon *Bradenford*, or Broad ford, a considerable manufacturing town of England, in Wiltshire, beautifully situated on the declivity of a hill, on the Lower Avon, which divides it into two parts, the Old and New Town, and which is crossed by two stone bridges, one of nine arches and the other of four. The principal public buildings are the church, a free school for boys, and two charitable establishments for old men and women. About ten or twelve hundred pieces of fine broad cloth are manufactured here annually, and in one manufactory there are no fewer than 1500 persons employed. Number of houses in 1801, 1288. Population 7302, of whom 4648 are employed in trade and manufactures. (H)

BRADFORD, an ancient manufacturing town of England, in the West Riding of Yorkshire, situated on a rising ground, from which excellent stone for building is obtained. The chief public buildings are the church, and the Piece Hall, in which various articles of manufacture are exhibited for sale. The principal manufactures of Bradford are worsted stuffs, shalloons, calimancoes, broad and narrow cloths, wool cards, combs, and leather boxes. There are three iron founderies in the town, and one in the neighbourhood, all of which are advantageously supplied with iron ore and coal. A cut from the Leeds and Liverpool canal conveys the manufactures of Bradford to the great marts of trade. Number of houses in 1801, 1368. Population 6393, of whom 1300 were employed in manufactures. (H)

BRADLEJA, a genus of plants of the class Monœcia, and order Monadelphia. See BOTANY, p. 328.

BRADLEY, JAMES, a celebrated astronomer, was born at Shireborn, in the county of Gloucester, in 1692. He received the first rudiments of his education at a boarding-school in North Leach, kept by Mr Egles and Mr Brice; and being intended by his parents for the church, he was sent to Oxford, and was admitted a commoner of Baliol college, on the 15th of March 1710-11. After having taken the degree of B. A. in 1714, and that of M. A. in 1717, he was admitted to deacon's orders by the Bishop of London, on the 24th of May 1719, and a few months afterwards, he obtained priest's orders from the Bishop of Hereford, who not only appointed him his chaplain, but presented him to the vicarage of Bridstow, in the county of Hereford. The fondness

[illegible]

a profound philosopher, over the whole of Europe.

In the year 1730, Mr Bradley was appointed to succeed Mr Whiteside as lecturer in astronomy and experimental philosophy in the university of Oxford, an office which he held during the remainder of his life; and in 1737, he published his observations on the comet which appeared at the beginning of that year. From the situation which our author held at Oxford, he was intimately acquainted with Dr Halley, who soon perceived and appreciated the excellence of his character, and the extent of his attainments. Worn out with the labours of study, and sensible that his health was rapidly declining, this veteran philosopher was solicitous that Dr Bradley should succeed him as astronomer royal at Greenwich, —a situation for which he was, above all others, so eminently qualified. He accordingly made frequent applications for the reversion of this office to his young friend, and even offered to resign it in his favour, if such a step were necessary to his success. Death, however, put an end to the friendly solicitations of this venerable man, before they had been crowned with success: but through the influence of the Earl of Macclesfield, the president of the Royal Society, Bradley was appointed to the office of astronomer royal in 1742; an appointment which the university of Oxford very properly distinguished, by conferring upon Bradley the degree of doctor in divinity.

In the year 1744, Dr Bradley married Mrs Susannah Peach, the daughter of Samuel Peach, Esq. of Chalford in Gloucestershire. The result of this marriage was only one daughter, who survived her father.

In the course of his observations on the declination of the fixed stars, Dr Bradley was led, in 1745, to the discovery of the nutation of the earth's axis, of which he communicated a detailed account to the Royal Society in 1747, in a letter addressed to the Earl of Macclesfield. In this admirable letter, which is equally remarkable for its philosophical precision, and for the simplicity and modesty with which it is written, Dr Bradley takes an opportunity of expressing the obligations which he lay under to Mr George Graham, by whom his instruments were principally made; and we cannot help contrasting his conduct, in this respect, with that of many modern mathematicians, who are too apt to overlook the high claim to reputation, which the makers of philosophical instruments most undoubtedly possess. "I am sensible," says Dr Bradley, "that if my own endeavours have, in any respect, been effectual to the advancement of astronomy, it has principally been owing to the advice and assistance given me by Mr George Graham, whose great skill and judgment in mechanics, joined with a complete and practical knowledge of the uses of astronomical instruments, enable him to contrive and execute them in the most perfect manner." The important discovery of the nutation of the earth's axis was rewarded with the gold medal, which was annually given by the Society.

From the numerous observations which Dr Bradley had now made, he became more and more sensible of the necessity of having instruments even more accurate than those which he had used; for, to use his own words, "as we advance in the *means* of making more nice enquiries, *new* points generally offer themselves, that demand our attention." He therefore embraced the opportunity presented by the annual visit which the Royal Society made to the observatory, and he pointed out to the learned deputation from that body, the necessity both of repairing the old instruments, and of obtaining several new ones. In consequence of this representation, the Society obtained from George II. in 1748, a grant of £1000, to be expended on astronomical apparatus, under his superintendance. With the assistance of Mr George Graham and Mr John Bird, the observatory was soon furnished with those admirable instruments, by which all his subsequent observations were made.

In the year 1751, when the living of Greenwich became vacant, Mr Pelham offered it, in the king's name, to Dr Bradley, as a token of respect for his important services to science. The same conscientious motives, however, which induced him to resign his livings in the church, prompted him, on the present occasion, to decline an offer, which would have set at variance the duties which he owed to religion and science. The king was so much pleased with the disinterestedness of our author, that he granted him a pension of £250 during pleasure, which was continued till the end of his reign, and renewed on the accession of his present majesty.

In 1752, Dr Bradley was admitted into the Council of the Royal Society; and in 1757, he published his observations on the comet of that year. The remainder of our author's life was not distinguished by any events which are worthy of being recorded. He continued to prosecute his observations, with a diligence too great for his constitution, till he was afflicted with a lowness of spirits of the most distressing kind: he was in constant terror of mental derangement, and though the vigour of his faculties suffered no abatement, yet the fear of losing them altogether, never ceased to haunt him till the end of his life. In 1760, his bodily strength began to experience a decline, and in consequence of an inflammation of his kidneys, he was attacked with a total suppression of urine, which terminated his existence, at Chalford, in Gloucestershire, on the 13th of July, 1762, in the 70th year of his age. His remains were deposited at Mitchim Hampton, in Gloucestershire, in the same grave with his wife and mother.

The fame of Dr Bradley was widely extended during his life, and gained him the particular notice of most of the learned societies of Europe. The Academy of Sciences at Paris, enrolled him among their number, in 1748. In 1754, he was elected a member of the Academy of Sciences at St Petersburgh. In 1757, he was chosen a fellow of the Academy of Sciences at Boulogne; and he obtained the same honour from the Academy of Sciences at Berlin.

The private character of Dr Bradley was marked by all those virtues which are estimable in domestic society. He was mild and gentle in his temper, compassionate and liberal to the poor, and kind and generous to his relations. Though he spoke well and expressed himself clearly, yet his silence was so proverbial, that he was said never to have spoken but when it was absolutely necessary. The attention and kindness which were shewn to him, from persons of the first rank and talents in the kingdom, were not extorted by that bustling activity and self applause, with which some philosophers have attempted to force themselves too rapidly into public notice. Bradley was too modest for this species of philosophical empiricism, and too sure of fame to take the trouble of courting it.

The writings of our author were extremely few. A valuable paper of his on Micrometers, was published in the Transactions of the Royal Society for 1772. His catalogue of 389 fixed stars appeared in the Nautical Almanack for 1773. His numerous and accurate observations on the moon, led to the perfection of the lunar tables. He constructed, from his own observations, new tables for finding the places of Jupiter's satellites; and he determined, with great accuracy, the atmospherical refractions, and gave an elegant formula for computing the corrections due to a variation in the density and temperature of the air. His observations, which occupy no less than thirteen folio volumes, were presented to the university of Oxford in 1776, on condition that they should be printed. The first volume has been recently published by Dr Hornsby; but, in consequence of his ill health, the remainder are now in the hands of the learned Mr Abraham Robertson, to whom they have been entrusted for publication. (β)

BRADNINCH, a town of England, in Devonshire, situated on the river Collumb. It consists of one irregular street, about a mile long. The principal manufacture of the place is paper-making, which is carried on to a great extent in the neighbourhood. Number of houses 253. Population 1187. (*j*).

BRAGA, or Brague, the *Bragara* and *Augusta Bracharorum* of the ancients, a city of Portugal, the capital of the province of Entro Douro e Minho, is situated in a broad open valley of the same name, on the small river Cavado. Braga is said to have been built by the Bracares, the ancient inhabitants of the country, and was ranked by Ausonius among the four chief cities of Spain.

Quæque maris sinu jactat se Braccara dives.

When Gallicia and Portugal were invaded by the Suevi, Braga became the seat of their kings, and continued so for 170 years, when it was taken by the Goths. When Alphonso I. took this city from the Moors, in 1240, all the Spanish bishops submitted themselves to its church; and hence the archbishops of Braga stiled themselves the primates of Spain, an honour which was disputed with them by the prelates of Toledo. The ruins of an aqueduct, of an amphitheatre, and several Roman coins, evince the antiquity of the city.

"Braga," says that intelligent traveller, Mr Link, "is subject to the archbishop of the place, who enjoys a revenue of 100,000 crusades; and appoints judges and two tribunals, the one spiritual, the other temporal; so that this is the only city where the king does not appoint a corregidor, or a *juiz de fora*. In the coutos (*loca cauta*, or asylums or places where a priest has jurisdiction) round the town, his sentence is final in criminal affairs, but not on the inhabitants of the town.

"Braga contains five parishes, and seven monasteries. Several of the streets are broad, light, and open, but most of the houses are small, as in all inland towns in Portugal. Among the objects of curiosity here, is the large old Gothic built cathedral, with its antiquities and treasures; also the church and monastery of St Fructuosa, containing a miraculous picture of the virgin, and rich in treasures and relics, stand on a hill with the town, so situated as to form a fine object, as seen from a broad ancient street.

"Braga was a more considerable place in the 15th century than now. It has a hat manufactory, which supplies a great part of Portugal with hats for the common people, nor are the hats bad, though they do not equal the English. There is also a manufactory of knives, which is inconsiderable. The women are every where seen knitting, sewing, or making linen, and signs of industry and activity every where appear. The rich inhabitants of Braga have a bad name in the other very social towns of Minho. They are accused of being quarrelsome, fond of scandal, and their manners are very much disliked." Population 13,000. The diocese includes 1200 parishes, and 150 convents. W. Long. 8° 5', N. Lat. 41° 33'. See Link's *Travels in Portugal*, p. 334. (π)

BRAGANTIA, a genus of plants of the class Gynandria, and order Hexandria. See BOTANY, p. 319. (w)

BRAGANZA, *Berganca*, *Brigantia*, and *Brigentium* of the ancients, supposed by some to be the *Coeliobrigia* of the ancients, is a town of Portugal, in the province of Tralos Montes, situated in a spacious plain near the river Fervença, on the borders of Leon and Gallicia. Braganza consists of a city, defended with towers and a castle, and a town under the protection of a fort. Two parish churches, two hospitals, and four convents, are the principal public buildings. Stuffs of silk, velvet, and grogram are the only manufactures of the place. The Oyder of Braganza comprehends the city itself, and twelve other towns, and contains about 75,000 inhabitants. There were mines of silver in the Duchy. Population of the town, 2,700. W. Long. 6° 25', N. Lat. 41° 44'. (o)

BRAHE, TYCHO, a celebrated astronomer, was born on the 14th December, 1546, at Knudstorp, a small lordship, near Helsingborg, in Schonen, and was descended from a noble Swedish family that had for some time been settled in Denmark. Blessed, or burdened perhaps, with a large family, his father, Otto Brahe, was anxious to educate his sons at the least expence, and therefore chose for them the honourable and easy profession of a soldier. His son Tycho, however, had the good fortune to be adopted as the heir of his uncle, George Brahe, who, perceiving the capacity of his nephew, and his fondness for study, got him instructed in the Latin language, without the knowledge of his father.

At the age of twelve, after the death of Otto Brahe, his uncle sent Tycho to Copenhagen to complete his studies, preparatory to his entering upon the profession of the law. After he had spent two years at this university without exhibiting a predilection for any particular branch of knowledge, his passion for astronomy was excited by one of those accidental circumstances to which science has so often been indebted for her most able cultivators. The great eclipse of the sun on the 21st of August 1560, attracted his notice, and he was struck with astonishment when he perceived that it happened at the precise time at which it was predicted. From that moment he determined to understand a science so correct in its principles, and he immediately purchased a copy of the *Tabulæ Bergenses* by Jo. Stadius, from which he acquired some information respecting the planetary motions.

After finishing his studies at Copenhagen, he was sent to Leipsic, to acquire a knowledge of the law; but the attractions of astronomy withdrew his attention from every other subject, unless when his tutor urged him, by his remonstrances, to prepare for the profession to which he was destined. The pocket money allowed him by his uncle, was uniformly expended in the purchase of astronomical books; and with a little celestial globe, he studied the names of the stars, when sleep had disarmed the vigilance of his preceptor.

After remaining three years at Leipsic, he was preparing to make the tour of Germany; but, in consequence of his uncle's death, in 1565, he returned to inherit the fortune which had been bequeathed to him. His relations seem to have seized this opportunity of making their last effort to subdue his love of science, and to bend his mind to the level of his profession. They loaded him with reproaches for having neglected his studies: and they treated his astronomical knowledge as useless, and even degrading, till his situation became so uncomfortable, that he left the country with the design of travelling through Germany.

At the beginning of his travels, when Tycho had arrived only at Rostoch, an accident occurred, which had nearly terminated his career. At a wedding feast to which he was invited, he quarrelled with a Danish nobleman about some subject in geometry, and being both of impetuous dispositions, the mathematicians resolved to settle the difference in the field. In this duel Tycho lost a considerable portion of his nose, a loss which he very dexterously supplied with a substitute made of gold and silver, and fastened by means of glue, so as to resemble the real member.

During his visits to the principal cities of Germany and Italy, Tycho became acquainted with the most illustrious astronomers of the times, and neglected no opportunity of improving in his favourite study. Among these were the Landgrave of Hesse, one of the most accurate observers of his age, who contributed much to the future comfort of Tycho.

During his stay at Augsburgh, he formed an intimate acquaintance with the celebrated Peter Ramus, and he inspired with a love of astronomy Peter Hainzell, the consul or burgomaster of the city. This public-spirited magistrate built an excellent observatory at his own expence, under the direction of Tycho, in which they made many valuable observations before Tycho left Augsburgh. Hainzell continued to observe the heavens with great assiduity, and afterwards published his observations on the new star which appeard in 1572.

In 1570, Tycho returned to Copenhagen; but from the fame which he had already acquired, he was invited to court, and harassed with the visits and attentions of his friends and admirers. To avoid the serious interruptions to his studies which he thus suffered, he retired to Herritzvold, near his native place, where his maternal uncle, Steno Bille, offered him every accommodation for the prosecution of his studies. In this sequestered spot, the mind of our astronomer was at the same time distracted with the study of alchemy and the passion of love; but he found it much more difficult to obtain the philosopher's stone, than the object of his affections. The young girl with whom he was so violently enamoured, was the daughter of a neighbouring peasant; and though he endeavoured, by several ingenious arguments, to convince his relations, that the inferiority of her rank would make her a more suitable wife to a philosopher, yet his marriage produced an animosity among the parties, which nothing but the personal interference of the king was able to compose.

During Tycho's residence at Herritzvold, he discovered the new star in Cassiopeia, which appeared in 1572, and which was one of the most remarkable phenomena in the history of astronomy.[*] The observations which Tycho made on this singular body, were published at Copenhagen, in quarto, in 1573, under the title of *De nova stella, anno 1572, die Nov. 11. vesperi, in asterismo Cassiopeiæ circa verticem existente, annoque insequenti conspicua, sed mense Maio magnitudine et splendore jam diminuta.*

About this time Tycho seems to have returned to Copenhagen, and was requested by King Frederick II. to deliver a course of lectures on astronomy, in which he gave a copious view of the science, and did not hesitate to defend the reveries of judicial astrology. The coldness which still existed between Tycho and his friends, notwithstanding the king's interference, induced him to think with seriousness of settling in some distant country, where he might pursue, without interruption, the quiet researches of science. He accordingly left Denmark, and after travelling through Germany, and as far as Venice, he at length fixed upon Basle, in Switzerland, as a suitable retreat for himself and his family. But when he returned to Denmark to prepare for the removal of his family and his instruments, he found that Frederick had been informed of his views by the Prince of Hesse, and was resolved to detain within his kingdom a philosopher who was one of its greatest ornaments. He settled upon him a pension of 1000 crowns a year; he presented him with the canonry of Roschild, with an annual income of 2000 crowns; and he made over to him the island of Huen, and promised to erect in this sequestered spot an observatory, completely furnished with the choicest instruments. Elated with the munificence of his sovereign, Tycho gratefully accepted the generous offer: The foundation stone of the observatory, which he called Uramburg, was laid on the eighth of August, 1576, and a building, 60 feet square, containing a commodious suite of apartments, and a subterraneous laboratory, was speedily completed at the expence of nearly 20,000*l*. A detached building, called Stiernberg, or the Mountain of the Stars, was afterwards constructed by Tycho himself.[†]

In this situation, so congenial to his wishes, Tycho continued to observe the heavens for nearly 21 years. He gave instructions in astronomy to a number of scholars, several of whom were sent at the king's expence, while others were supported and educated by himself; and though at a distance from society, he was honoured with frequent visits by many princes, as well as philosophers. Ulric, Duke of Mechlenburg, accompanied with his daughter, the Queen of Denmark, and William, Prince of Hesse, were among the number of his guests.

In the year 1588, Tycho printed and distributed among his friends, a new work, entitled, *Tychonis Brahe Dani, de mundi ætherei recentioribus phenomenis liber secundus, qui est de illustri stella caudata anno 1577, conspecta.* This book, which contains the new positions of the stars, several methods of calculation, and details of astronomical observations and also discussions on the works which had already been written on this famous comet, was not finished till 1603, and bears on the title-page the date of Frankfort, 1610. The cause of this delay in its publication was owing to some additions which Tycho was anxious to make to his work.

When James VI. of Scotland went to Copenhagen, in 1590, to conclude his marriage with the Princess Anne, he spent no fewer than eight days under the roof of Tycho, at Uraniburg. On his departure from Huen, James presented Tycho with a magnificent present; composed a set of Latin verses in honour of the astronomer; and accompanied his royal license for the publication of Tycho's works, with the following complement to the talents of their author:

"Nor am I acquainted," says he, "with these things on the relation of others, or from a mere perusal of your works, but I have seen them with my own eyes, and heard them with my own ears, in your residence at Uraniburg, during the various learned and agreeable conversations which I there held with you, which even now affect my mind to such a degree, that it is difficult to decide whether I recollect them with greater pleasure or admiration; which I now willingly testify by this license to present and future generations," &c.

In consequence of an attack upon Tycho's treatise on the comet of 1577, by a countryman of our own, Tycho published a reply in 1591, entitled, *Tychonis Brahe apologetica responsio ad cujusdam peripatetici in Scotia dubia, sibi de parallaxi cometarum opposita.*

The death of Frederick II. was a severe blow to the fortunes of our author. His son, Christian IV., indeed, before his mind was poisoned by the advice of his wicked ministers, not only continued the pension of Tycho, but repaired to Uraniburg, in 1592, in the 15th year of his age, to visit the friend of his father, and the greatest astronomer of the age:

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[*] See the article ASTRONOMY, page 679.

[†] A plan of the Isle of Huen, and a view of the buildings, will be found in Hoffmann's *Portraits Historiques des hommes Illustres de Dannemarc.* See also the *Gentleman's Magazine* for November 1789.

During the few days which he spent in the company of Tycho, he examined, with the curiosity natural to youth, all the apparatus of the observatory; and having shewn a particular fondness for a gilt tin globe, containing a representation of the starry heavens, Tycho presented it to the young king, and received in return a gold chain as a token of his unalterable attachment. But the favour of princes was on this occasion what it always has been,—a gift during the pleasure of those who surround and flatter them. The envy of Tycho's great reputation, and perhaps a personal feeling excited by the violence of his temper, or the keenness of his satire, instigated the advisers of the young king to forget the hospitality which he received at Uraniburg, and to deprive Tycho of his pension, and of the canonry of Roschild. The minister Walchendorf, a name blackened in the eye of science, will descend to posterity loaded with the execrations of every wise and virtuous man.

Being thus deprived of the means of supporting his establishment in Huen, Tycho quitted that favourite retreat, endeared to science by the importance of his labours, and removed to Copenhagen, where he waited for the earliest opportunity of leaving for ever an ungrateful country.* With his wife and children, and instruments, he landed at Rostock, and spent a year at Wansbeck with his friend Henry Rantzau or Ranzovius, who published in 1600 a treatise on astrology, and who was intimately acquainted with the Emperor Rodolph II. a great amateur of alchemy and astrology. Before our author left Uraniburg, he completed his work, entitled, *Tychonis Brahe Dani Epistolarum astronomicorum libri, quorum primus hic illustriss. et laudatiss. principis Gulielmi Hassiæ Landtgravii, ac ipsius mathematici literas unaque responsa ad singulas, complectitur. Uraniburgi ex officina typographica authoris* 1596; and during his stay with Rantzau, he published his *Astronomiæ instauratæ Mechanica*. Fol. Wandesburgi 1598.†

The last of these works was dedicated to the emperor Rodolph, as a preparatory step to the personal introduction to that monarch, which Tycho was promised by his friend Rantzau. The wishes of our author, however, were anticipated by a flattering invitation from the emperor, which Tycho gratefully accepted; and he repaired to Prague in 1599, where he met with the most welcome reception. This generous patron of merit erected, in the neighbourhood of Prague, a commodious observatory for his friend, and settled upon him an annual pension of 3000 crowns. Tycho now looked forward to better days. He renewed with delight the labours which he had so unwillingly relinquished, and had the singular felicity of having for his pupils two such celebrated men as Kepler and Longomontanus. His spirits, however, were broken with sufferings and disappointment; and neither the continued kindness of his benefactor, nor the society of such able pupils, could sooth his agitated mind. The severity of his studies had begun to affect his bodily strength; and finding himself encircled with new friends in a distant land, the melancholy remembrance of former attachments, which even the ingratitude of his country could not extinguish, contributed to prey upon his mind. The most trifling occurrences were magnified by his diseased imagination into prodigies sent from heaven; and from his sallies of wit and pleasantry, his mind frequently turned to the contemplation of his latter end. A suppression of urine, attended by the most agonising pains, induced a violent fever and a temporary delirium, during which he often exclaimed "*Ne frustra vixisse videar.*" These violent paroxysms left him in a state of extreme debility, but in the full possession of his mental powers. He saw that death was inevitable: He composed an extempore copy of verses: He exhorted his pupils to persevere in their labours: He conversed with Kepler on some of the profoundest points of astronomy; and he mingled with these amusements, frequent acts of piety and devotion. In such a frame of mind, he expired without the least symptom of pain, on the 24th of October, in the 55th year of his age. A monument, containing the figure of a knight, in rude sculpture, was erected to his memory in the Tein church at Prague, where his remains were deposited; and his wife, with two sons and four daughters, were left to lament his loss.

Tycho was a man of the ordinary size, with light red hair, and a pleasing manly countenance. In his temper he was irritable and passionate, and even sullen and unbending. He possessed an unfortunate turn for satirical invective, without the power of bearing the raillery of others. The misfortunes of his life were perhaps owing to this unhappy propensity, which frequently exposed him to the enmity of those who suffered from his wit. But we have no means of ascertaining whether this licence which he gave to his tongue, was a foible or a vice. His religious principles were too well founded, we think, to permit the supposition, that malice was in any case mingled with his satire.‡

The merits of Tycho as an astronomer have already been fully estimated in another part of our work.§ His miscellaneous labours have not yet fallen under our notice. That a philosopher like Tycho, addicted to the study of the most demonstrative of the sciences, should have indulged in the pursuits of alchemy, and in the study of judicial astrology, must be ascribed, not only to the character of the times in which he lived, but to a natural love of the marvellous, which seems to have been predominant in his mind. Even at Uraniburg, in the midst of his glory, his greatest delight was to astonish his visitors by making his pupils appear before them without any apparent communication. If he met with an old woman or a hare, he durst not prosecute his journey;

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* It is said by some of his biographers, that he resumed his observations at Copenhagen; and that Walchendorf intimated to him the king's order to discontinue them;—an order equivalent to a sentence of banishment.

† M. Messier has at present in his possession the copy of this work which Tycho sent to Rantzau. It is covered with satin, and the portrait of Tycho is illuminated.

‡ "Nihil fictum; nihil simulatum in ipso; sed scaphum scapham apellabat; unde omne quod sustinuit odium." Jessenius, *Fun. Orat.*

§ See *History of* Astronomy, p. 595, 596.

and he kept an idiot constantly beside him, whose incoherent expressions were stored up and examined by Tycho as the predictions of some supernatural being. A desire to be consulted as a fortune-teller, was another of the failings of this extraordinary man. He calculated the nativity of his patron Rodolph, and having predicted that some wicked designs would be practised against him by his relations, the timid emperor was seized with alarm; and when the bad conduct of his brother seemed to verify the prediction, he confined himself to his palace, and actually fell a prey to the fear which it inspired.

From these facts, we cannot be surprised at his attachment to alchemy and astrology; but we can find no explanation of the deceit which he must have practised, when he made an apology for not publishing his chemical experiments. "On consideration," says he, "and by the advice of the most learned men, he thought it improper to unfold the secrets of the art (of alchemy) to the vulgar, as few people were capable of using its mysteries to advantage, and without detriment."

Medicine was also a favourite study with Tycho. He gave his medicines and his advice gratis; and he published an account of the composition of an elixir for the plague, which was addressed to the Emperor Rodolph.

Tycho was likewise a worshipper of the muses. He wrote Latin verses, and composed a poem on his exile, which was published at Rostock in 1614. His taste for architecture seems to have been good. He drew the plan of the castle of Cronberg, and sketched the design for the mausoleum of Frederick the Second, which was executed in Italy, and erected in the cathedral of Roschild.

Beside the works which we have mentioned, Tycho wrote the following: *Astronomiæ instauratæ Progymnasmata: quorum hæc prima pars de restitutione motuum solis et lunæ, stellarumque inerrantium tractat*, 1602, 4to;—*De mundi ætherei recentioribus phenomenis liber secundus*, 1603, 4to;—*De disciplinis mathematicis oratio, in qua simul astrologia defenditur, et ab objectionibus dissentientium vindicatur*, Hamburg, 4to, 1621. The works of Tycho were published at Frankfort in 4to, in 1648. In 1657 a collection of his observations was published at Vienna in folio, under the title of *Lucii Baretti* (*Alberti Curtii*) *Sylloge Ferdinandea, sive Collectanea historiæ celestis e commentariis MSS. observationum Tychonis Brahe ab anno* 1582 *ad annum* 1601; and afterwards in 2 vols folio, at Augsburg, under the title of *Historia Celestis complectens observationes Tychonis*. The last of these works, which is a most valuable collection of observations, occupies more than 1000 folio pages; and was afterwards reprinted at Augsburg and Vienna in 1668; at Ratisbon in 1672, and at Dillingen in 1675, &c. &c. The Rudolphine Tables, which Tycho left unfinished, were published at Ulm in 1627, in folio, entitled *Jo. Kepleri Tabulæ Rudolphinæ, quibus Astronomicæ scientiæ, temporum longinquitate collapsæ, restauratio continetur, a Tychone Brahe primum animo concepta et destinata anno Chr.* 1564 *exinde observationibus siderum accuratissimis post annum precipue* 1572, *serio affectata, tandem traducta in Germaniam inque aulam et nomen Rudolphi Imp. anno* 1598.

The instruments of Tycho were purchased by the Emperor Rodolphus for 22,000 crowns of gold.—During the troubles of Bohemia, the army of the Elector Palatine destroyed the greater part of them; but the great celestial globe of brass was preserved, and deposited with the Jesuits of Neyssa in Silesia. In 1633, Udalric the son of Christian, king of Denmark, carried it to Copenhagen, and placed it in the hall of the Royal Academy.

See Gassendi *Vita Tychonis Brahe*, &c. Paris, 1654; Coxe's *Travels in Denmark*, vol. v. p. 191; *De vita et morte illustris et generosi viri* TYCHONIS BRAHEI, *oratio funebris Joh. Jessenii à Jessen*. Pragæ 1601; and a *Life of Tycho* by Weistriss, published in Danish and in German. The German translation appeared at Leipsig in 1756, in 2 vols. 8vo. (β)

BRAIN. See ANATOMY, PHYSIOLOGY, and SURGERY.

BRAINTREE, a market town of England in Essex, situated on a rising ground, and chiefly remarkable for its baize manufactory, which was introduced here by the Flemings, who were expelled from the Netherlands by the cruelties of the Duke of Alva. The streets are narrow and inconvenient, and many of the buildings are very old, and formed of timber. The church is a large building erected on a high piece of ground, which seems to have been once occupied by a camp. This church underwent several alterations in the reign of Henry VIII., the expence of which was defrayed from the profits of three plays acted in the church. The first of these, called *St Swithin*, was performed in 1523; the second, entitled *St Andrew*, was performed on the Sunday before Relique Sunday in 1525; and the third, called *Plucy Dacy* alias *St Ewestacy*, in 1534. After the Reformation, the church wardens sold the contents of the players wardrobe for 50 shillings, and the play books for 20 shillings. The number of houses in this town in 1801 was 454, and the population 2821. The village of Bocking, consisting of one long street, forms now a part of the town, and contains no fewer than 623 houses and 2680 inhabitants, of whom above 600 were employed in the manufacture of baize. See Morant's *History of Essex*. (*j*)

BRAMAH'S MACHINE, OR PRESS FOR PRINTING BANK NOTES. Contrary to our usual practice, we have been obliged to introduce a description of this ingenious machine under the name of its inventor. It was out of our power to obtain a drawing and description of it when we we were engaged in that part of our work which contains the word BANK, and we have therefore thought it more advisable to insert our account of it in this place, than to refer it to some more distant article, where the insertion of it would be equally inconsistent with our general plan.

In many other parts of our work we shall have occasion to direct the attention of the reader to the inventions of Mr Bramah, which are no less creditable to his genius, than they have been useful to society. His improvements upon locks; his rotatory engine for raising water; his hydrostatic press, applied to cranes, and to the sluices of canals; his improvement on the steam engine; his planing machine, for producing parallel surfaces on wood; his method of cutting screws and turning spheres; his equalising tool, or apparatus for turning cylinders at one operation; his method of introducing steam into the upper coppers of breweries; his contrivance for locking carriages; his improved pens, by which no part of the quill is lost; and his new plug and sliding cocks, will all come under notice in the course of this work.

It was formerly the custom in the Bank of England to fill up the numbers and dates of their notes in writing, till the year 1809, when the machine invented by Mr Bramah was adopted for this purpose. By this contrivance, the numbers and dates were inserted not only in a more uniform and elegant manner, but the labour was diminished to less than one-sixth of what it was before.

The copperplates, from which the words of the notes are printed, are double; that is, they throw off two notes at a time upon one long piece of paper. This piece of paper, containing two notes, is then put into the machine, which prints upon them the number and dates in such a manner, that the types change to the succeeding number, and that the whole operation is performed without any attention on the part of the clerk. If one of the notes, for example, is No. 1, No. 1, and the other on the same paper No. 201, No. 201, when these are printed, the machine alters itself to No. 2, No. 2, and No. 202, No. 202; and in printing these, the types again change to No. 3, No. 3, and 203, 203. The date, and the word London, are cast in stereotype, and each machine is furnished with one of these for each day in the year, and they of course are changed every day.

The Bank of England have upwards of 40 of these machines, the greater part of which are in constant use. It was formerly considered sufficient labour for each clerk to fill up with the number twice repeated, and date twice repeated, 400 notes per day; but since the introduction of the machines, one clerk has printed 1300 double notes, which are equal to 2600 single ones; for though in the machine the double notes do not require more labour than single ones, yet to fill up the blanks by writing, would occupy twice the time.

The mechanism by which this is effected is extremely ingenious, and the principle is not limited to the numbering of notes, but is equally applicable to the purpose of printing any series of numbers which require continual alteration. In Plate LXXVI. we have represented one of these machines, which is not, however, precisely the same as any of those in use, being only a single one, and adapted for printing one note at once; but we have only to suppose it extended to twice the length, and furnished with a double set of types, in order to fit it for printing two notes at the same time. In Fig. 2. of Plate LXXVI., a perspective view of this machine will be found, and a section of its parts at Fig. 1. in both of which the same letters of reference are employed. A solid piece of mahogany, A A, forms the base of the machine, and to this two iron plates B B are screwed, forming the sides of a box, the front of which is removed in Fig. 2. to exhibit the interior, and the back is concealed behind the mechanism. Across this box, an axis D is placed, having its pivots fitted into sockets, which are fastened in the sides of the frame, as is evident from the figure. This axis carries the tympan E, which gives the pressure to print off the note attached to it by screws; and a lever F is also fixed to the axis, by which the operator forces down the tympan. The moveable types, in which the principal novelty of the invention consists, are fitted into a series of brass circles, mounted upon an axis G, extending across the centre of the frame. These circles are sufficiently pointed out in the perspective view, by the numerals on the types fixed in them; they are ten in number, arranged in two lots of five each. Each circle (shewn more plainly at I, Fig. 1.) is divided into 11 parts, and at each a rectangular notch is cut, to receive the types 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, and a blank type. Five of the circles, thus prepared, being placed side by side, upon a fixed axis, G, on which they revolve freely, are sufficient for printing any number less than 100,000; because, as the circles can be turned about on their axis independent of each other, it is obvious, that any combination of the above figures may be produced, by bringing them to the highest point of the circle, which is the situation in which they are placed when an impression is to be taken. This will be more easily understood, if we consider that the brass plate, which covers up the circles, is put in its place, as represented in Fig. 1. at *a*. This brass plate has two apertures through it, to receive the two series of types which project up a little above its surface when at the highest. In Fig. 2. this plate is removed, to exhibit the interior mechanism. The circles are made to revolve by means of wheels H upon an axis, called the back axis, parallel to the axis of the circles. The end of it is seen at I, Fig. 2 projecting through the frame, and it carries three of the wheels H, two of which are at the same distance apart as the two series of figure circles to which they apply. The third wheel is placed at an intermediate distance between the other two, and is acted upon by a catch or pallet *b*, Fig. 1. attached to the axis of the tympan, by means of a joint, in such a manner, that it will strike against the highest tooth of the wheel H, and turn it round one tooth. When the handle is lifted up rather beyond the perpendicular, where a stop *d*, Fig. 2. upon the axis, meeting a projection *d*, Fig. 1. on the cover of the box, prevents it from moving farther; but when the handle is returned down into the position of Fig. 1. the pallet, though it again meets the tooth of the wheel, gives way upon its joint, and passes by without moving the wheel. In this manner, it will be seen, that every time the handle is pressed down to take an impression, in raising it up again, to place a fresh paper upon the tympan, the pallet moves the wheels H one tooth, and as the teeth of these wheels engage the teeth of the figure circles, a similar motion is communicated to them, bringing a fresh number beneath the tympan, ready for printing.

It is to be observed, that the wheels H are of such

PLATE LXXVI.

Fig. 1. and 2.

a thickness, as to engage only one of the five type circles at once, and their distance from each other is such, that they take the same circle in the one series as they do in the other. Now, by moving the back axis a small quantity endwise, it is obvious that the wheel H can be brought to act upon any of the five circles, or be placed in such a position as to be clear of them all. It is for this purpose that the head I, Fig. 2, comes through the frame of the machine; for by means of this the axis can be moved on end, and by proper marks upon it, it may be set to any of the five circles. In these positions it is confined by a semicircular clip, which enters grooves turned round on the axis, and deprives it of longitudinal motion, unless when the clip is raised. This can be done by a nut coming through the back of the frame at K, Fig. 1. It has a short lever on the inside of it, which, when the nut is turned round, raises up the clip, and releases the axis while it is set to the required circle, and the clip being let fall into the proper groove, confines it from any farther motion. In order that all the circles may stop at the exact point, when the figure is at the highest, and consequently when the surface of the figure will be horizontal, an angular notch is made on the inside of the figure circles, in the intermediate spaces between each figure; and at the lowest point of the circle *c*, Fig. 1, a moveable pin is fitted into the fixed axis, with a spring, which gives it a constant pressure downwards. The end of the pin is formed spherical, and well polished, so that when the circle is turned round, it is forced into its hole in the axis; but when another notch in the circle presents itself, the pin presses out into it, and retains the circle with a moderate force in its proper position, until the raising of the tympan, as before described, overcomes the resistance of the pin, and turns the circle round. By this contrivance, the types always arrange themselves into a straight line, after being turned round, without which the impression would have a very disagreeable and irregular appearance. The tympan E, Fig. 1, is composed of two parts: a solid brass plate, against which a few folds of cloth are placed and secured by the second part, which is a brass frame, covered with parchment, and attached to the former by four screws, two of which appear at *ff* in Fig. 2. The brass plate of the tympan is fastened to the leaf L, Fig. 1, projecting from the axis, by means of six screws. Two of these, only one of which, *h*, can be seen in the figure, tend to throw the tympan from the leaf, while the other four, which are arranged one on each side of the two former, draw the tympanum and leaf together. By means of these screws thus acting in opposition, the tympan can be adjusted so as to fall exactly parallel upon the type, and communicate an equal pressure to all parts of the paper, which is held against the tympan, by means of a frisket of parchment, stretched on a frame which surrounds the tympan, and is moveable on joints at *k*, *k*, Fig. 2. The frisket is cut through, as represented by the shaded parts in Fig. 2, in order to expose the paper where it is to receive the impression of the figures, and the N° before the figures, and also the impression of the date, year, and place. The type for these are formed in stereotype, and fastened down upon the surface of the brass cover *a*, the piece containing the day and month being changed every day. In order to find the proper position which the paper should occupy upon the tympan, two fine pins are fixed to project from it, and are received into holes made in the brass cover: Two dots are printed upon the note from the copper plates, and the pins being put through at these dots, ensures the figures, &c. coming on their proper places.

Bramah's Machine, Brampton.

The manner of using the machine is as follows: Suppose the back axis put so far on end as to be detached from all the circles;—the figure circles arranged by hand, so that the blanks are all uppermost; and the proper stereotypes put in for the date. The back axis is then first set, so that its wheels H may take the first of the five circles towards the right hand, and, by moving the handle down almost to touch the type, and returning it up again, the pallet moves the wheels H, and turns the two right hand circles, bringing up figure 1. The clerk now inks the type with a printer's ball, opens the frisket sheet L, Fig. 2, on its hinges, and places the note, (already printed in the copper-plate press), against the tympan, the proper place being determined by the two pins and the dots printed on the note, as before mentioned. He now shuts up the frisket sheet, in order to confine the paper and to keep it clean, except in the places where it is to be printed; then, by pressing down the handle F, the impression is given; and on lifting it up again, it moves the circles and brings up figure 2. The note is now removed, a fresh one put in, and so on, the figure always changing every time. During this operation, the two right hand circles act as units, and advance one each time. When 9 are printed in this manner, and 0 comes up, the handle is moved twice successively without printing, which brings up a blank and then 1. The back axis is moved, to act upon the second circle from the right hand, which now becomes the units, the first circles representing tens; by moving the handle *a*, without printing, figure 1 in the second circle comes up, making 11, the next time 12, and so on to 19. The first circle is now put forwards by hand, bringing up 2 and 0, on the second 20, then moving the handle to pass the blank, produces 21, 22, &c. to 30, when the first circle is again advanced, bringing up 4; in this manner the business proceeds to 99. The back axis is now shifted to the third circle, which becomes units, the second tens, and the first hundreds; the 0 and blanks of which are advanced to bring up 1, 0 is brought up in the second; and the machine itself brings up 0 in the third; after printing this, it changes to 101. The process now continues through the successive hundreds in the same manner as before, till 999. The back axis is now shifted to the fourth circle, and the three first must be advanced by hand when they require it. At 9999 the back axis is shifted to the fifth circle, and will serve to 999,999, beyond which it is not required to print.

BRAMPOUR. See BURHAMPOUR.

BRAMPTON, a market town of England, in Cumberland, situated on the river Irting, in a narrow and deep vale. It consists chiefly of a wide street very irregularly built, and carries on no manufacture of any importance. Camden supposes it to be the *Bremeturacum* of the Romans, and the station of the first cohort of the Tunguri. At the east end of the town there is a huge mount of a conical form, and about 360 feet in perpendicular height. A rampart and trench encircle the moat at its summit, which is a plane about 120 feet in diameter, defended by a breastwork. Number of houses in 1801, 346. Population 1682. (π)

BRANCA. See CAPE DE VERD ISLES.

BRANCH. See BOTANY, p. 55.

BRANCHIOPODA. See ENTOMOLOGY.

Boundaries, divisions, and extent of the country.

BRANDENBURG, MARQUISATE OF, a country of Germany, bounded on the north by Mecklenburg and Pomerania; on the east by Poland; on the south by Lower Lusatia, and the electorate of Saxony; and on the west, partly by the duchy of Magdeburg, and partly by the duchy of Lunenburg. This important province, which forms the basis of the possessions of the House of Brandenburg, is divided into the departments of the *Old Mark*, the *New Mark*, the *Middle Mark*, the *Ukraine Mark*, the *Vor Mark*, or the *Mark of Priegnitz;* and the lordships of *Beeskow* and *Sterkow*. The Old Mark, which is about eleven German miles long by nine in breadth, contains thirteen cities, the chief of which is Stendal, and about 8058 hides of taxable land. The New Mark is a tract of land about forty geographical miles in length, and only ten in breadth. It consists of seven original, and four incorporated circles, besides Custrin the capital; and has a regency of its own, courts of justice, and other colleges. It contains thirty-nine cities, and 16,738 hides of taxable land. The Middle Mark, which is the largest of all the departments of Brandenburg, contains about forty-eight cities and towns, the principal of which are Berlin, Brandenburg, and Potsdam; and has about 24,901 hides of taxable land. The Ukraine, or Ucker Mark, about thirteen German miles in length, and eleven in breadth, is divided into the two circles of Ucker Mark and Stolp, and contains fifteen towns, the chief of which is Prenzlo. The hides of land that are taxable are about 6379. The Vor Mark, or Mark of Priegnitz, ten and a half German miles in length, and seven and a half in breadth, contains twenty towns, the principal of which is Perlberg, and has 5211 hides of taxable land.

The whole country of Brandenburg is, in its greatest extent, about 200 miles from west to east, and about 110 miles from north to south. The soil, though in general inclining to sand, varies considerably in quality. Even in the most sandy and barren parts of the country, the industry of the inhabitants has been able to raise considerable crops of rye, barley, and oats; nor is this kind of soil found at all unfavourable to the culture of the vine, and the productions of the garden. Pines, and other resinous trees, are likewise planted here, and their growth fully answers the most sanguine expectation. A great proportion of this marquisate, particularly on the banks of the Oder, is extremely fertile; and the high perfection to which agriculture has been carried, through the judicious exertions of Frederic William, and his successor Frederic II. has produced the most beneficial change on the general appearance of the country. Tracts of land which formerly were mere sandy deserts, now bear luxuriant crops of wheat, spelt, and barley; unwholesome marshes have given place to rich and smiling fields; and places over which extensive but unprofitable forests once threw their dismal shade, are now enlivened by large and handsome villages. Yet agriculture, highly improved as it is, is by no means the principal object of attention in the Marquisate of Brandenburg. The greater part of its inhabitants depend for subsistence upon the rearing of cattle, particularly of sheep, whose wool, being of a very fine quality, forms the basis of the beautiful woollen manufactures which abound in that country. Their breed of sheep was much improved by the care of Frederic II., who procured a number of rams from England and Spain. Silk-worms are likewise cherished here with such success, as to become daily an object of more attention and importance. Nor among the advantageous productions of this country must we forget its woods, which not only supply the inhabitants with fuel for domestic use, as well as for their glass and iron furnaces, for charcoal, tar, and wood-ashes, but likewise with large quantities of timber for house and ship-building, a great proportion of which is exported to France, Holland, Hamburgh, and other parts of the continent. Yet notwithstanding this immense consumption of wood of every description, the forests are managed so judiciously as never to be exhausted.

Soil and productions.

The mineral productions of Brandenburg, though not distinguished by their variety, are of considerable importance. Among these we may reckon a white earth well adapted for pottery, and a very fine porcelain clay; also various kinds of earths capable of being converted into colours, alum, saltpetre, amber, and ironstone. Petrifactions, and other fossil curiosities, are likewise to be met with in various parts of Brandenburg.

Before the reign of Frederic William, the grand elector, manufactures had made but little progress in this country, or rather had been altogether extinguished by the ruinous war of thirty years. His wise and paternal exertions in behalf of his native dominions, soon changed the scene; and Brandenburg became, as it were, a new country, peopled by a mixture of colonies from many different nations, who brought along with them the arts and the manners of their respective countries. The Dutch, who took the lead in this system of colonization, renewed the order of tradesmen and artizans; conceived the project of felling the lofty trees, which, as the war of thirty years had converted the whole country into one vast forest, were now found in great abundance; and thus established one of the most lucrative branches of the commerce of Brandenburg. The elector likewise permitted some families of Jews to settle in his dominions; as the vicinity of Poland rendered their services useful for vending in that country the refuse of Brandenburg merchandise. But no event was more favourable to the enlightened projects of the great elector, than the revocation of the edict of Nantes by Louis XIV. Upwards of four hundred thousand Frenchmen were driven, by that measure, from their native kingdom, the most affluent of whom emigrated to England and Holland; while the poorer, but more industrious, taking refuge in Brandenburg, to the number of about twenty thousand, helped to repeople deserted towns, and taught the natives those manufactures of which they were yet ignorant. On the accession of Frederic William to the government, neither hats, nor stockings, nor serges, nor, in short, any woollen stuff whatever, was fabricated in his dominions. The industry of the French soon enriched them with these manufactures. They established fabrics of broad cloths, serges, strainers, small stuffs, druggets, crape, bonnets, and stockings woven in the loom; hats made of the fur of beavers, hares, and rabbits; and dyes of every kind. Some of these refugees became merchants, and sold by retail the products of the labour of others. Some of them settled in the capital, as goldsmiths, jewellers, watchmakers, or engravers; and those who took up their residence in the flat part of the country, cultivated tobacco, and reared fruits and excellent pulse in the sandy districts, which, through their fostering industry, were converted into admirable kitchen gardens. The elector, to encourage so useful a colony, assigned it an annual pension of forty thousand crowns, which it still enjoys.

These beneficial projects were adopted and improved upon by Frederic II., the son and successor of Frederic William, who reaped the full advantages of his father's labours. The tapestry of Brandenburg now rivalled that of Brussels; its galoon-lace equalled that of France; the mirrors of Neustadt surpassed in their clearness those of Venice; and the Prussian army was arrayed in cloth of home manufacture. To give new energy to that spirit of industry which the foreign colonies had excited, Frederic prohibited, by a severe edict, the exportation of wool; he established a public magazine, named the Lagerhaus, from which quantities of wool were advanced to poor manufacturers, who repaid it by the produce of their labour; the army, which was newly dressed every year, ensured a ready sale for their cloths; they even found their way into foreign markets; and in the year 1733, the manufactures of Brandenburg were in such a flourishing state, that they furnished for exportation forty-four thousand pieces of broad cloth, each twenty-four ells long. With these improvements, a spirit of frugality, scarcely less beneficial, was introduced among all orders in the state. During the preceding reign, many of the nobles had sold their lands to be enabled to purchase gold-cloth, and lace; now that abuse was done away, and the proudest grandees were contented with such articles of dress as the manufactures of their native country could afford. This regard to economy was the more necessary, as in most of the Prussian states, the right of primogeniture is disclaimed; and fathers, who have a numerous family, can procure, only by rigid parsimony, a respectable establishment for those, who, after their death, are to divide their family into new branches.

Amidst these important arrangements, one great deficiency remained yet to be regretted. As if every mind had been engrossed by the grand concern of encreasing the opulence and multiplying the comforts of the community, scarce a thought was bestowed on those more elegant, but less essential arts, which "exalt, embellish, and render life delightful." While agriculture and manufactures were carried to the highest degree of improvement, literature and science, with all the kindred accomplishments which tend at once to refine the taste and to polish the manners of a people, were left to languish for want of encouragement. Even commerce was checked by the narrow views of a government, more anxious to guard against poverty by repressing extravagance, than to extend the public resources by opening new channels for superfluous commodities, and thus offering new incitements to industry. It was reserved for Frederic II. to introduce a more liberal and enlightened policy. Aware how much commerce contributes to the power of a state, he favoured and prosecuted it by every practicable method; awarding premiums to those who were most active or successful in its various branches, and forming some considerable commercial establishments. His passion for literature, science, and the fine arts, being caught by many of his subjects, gave new life to the universities, academies, and seminaries, which had been formerly almost wholly deserted; and the crowds of learned men and accomplished artists, which his liberality attracted from every country in Europe, effected the happiest change in the taste and manners of the native inhabitants. For a more ample account of the commerce and literary institutions of Brandenburg, we must refer our readers to the articles Prussia and Berlin. We may only observe, that the Transactions of the Berlin Academy, of which many volumes have been published, do much credit to Prussian science; and that the specimens of painting, statuary, and engraving, which are occasionally produced in Potsdam and Berlin, might be acknowledged without a blush by the first artists in Europe.

Posting.

There is no country on the continent where the internal intercourse is more facilitated by excellent roads and regular stages than in Brandenburg. The rates of postage, and even the fare of postilions, are regulated by government; so that travellers can calculate their expenses to the minutest item, without being teazed by incessant importunities, or vexed by arbitrary impositions.

The posts are likewise managed with much order in Brandenburg, and letters are conveyed with the utmost regularity and expedition. The two grand mails which go from Wesel to Memel in Prussia, and thence throughout Russia, and from Hamburg, by the way of Silesia into Poland and Hungary, meet at Berlin, and are regulated in such a manner, that all these posts arrive and depart at eight o'clock in the evenings of Tuesday and Saturday.

Rivers.

The internal communication is still farther facilitated by the two great rivers, Elbe and Oder, which traverse the country in different places. The Elbe enters the Old Mark at Polke, and forms its boundary on the west. It receives the stream of Tanger, near Sangermunde, and the Havel, a navigable river, near Werber. Thence it flows between the Old Mark and Priegnitz, till it comes nigh Wittenberg, when it is joined by the Stepenitz, a river so considerable as to be navigated by boats. The Elbe leaves the Old Mark near Waneter, but continues to flow along the side of Priegnitz, from which it receives

Brandenburg.

another river named Aland near Schnackenburg, and last of all the tributary stream of Elde, in the country of Mecklenburg. The Havel issues likewise from the country of Mecklenburg, forming, in a certain part of its course, the boundary between the duchy of Mecklenburg, and the Ukraine Mark, and is navigable to large wherries from Furstenberg to Tchelenich. At Spandau it is swelled by the Sprée and the Dosse, and thus becomes navigable to vessels of considerable burden till it falls into the Elbe. Its tributary river Sprée, issuing from Lusatia, is large enough at Krasnich to bear rafts and floats, and becomes navigable at Cossenbladt. It receives another stream, named Wendische Sprée, at Kopenich, and loses itself, as we have already mentioned, on the Havel at Spandau. In its course it traverses several lakes, and is divided at different places, into several branches. The Oder, a fine navigable river, flowing from Silesia, penetrates the New Mark; receiving in the circle of Crossen the tributary river Ober, which issues from Poland; the stream Bober, below the town of Crossen; and above Küstrin, the Waste, which is itself swollen by the waters of the Notze and the Drague. Below Writgen it is joined by the Old Oder, which takes its rise in the circle of Lobus; next by the Finow, and last of all by the Welze, after which it penetrates into the country of Pomerania.

Canals.

Brandenburg enjoys, also, the advantage of many excellent canals. One of these, named the canal of Planen, was executed by Mahistre, a celebrated engineer, at the command of Frederic II. By this canal, which was begun and completed in the interval, between the first of June 1743, and the fifth of June 1745, the navigation from Berlin to Madgeburg is shortened by one half. It commences near Parei, upon the Elbe, and crossing the rivers Ihle and Stremna, proceeds to join the Havel near Planen, over a line of 8655 perches. This canal is twenty-two feet wide at the bottom of its channel, twenty-six at the surface of the water, and from forty to fifty between its banks. It has nine bridges at various intervals; and three sluices, which keeping the water at the height of twenty-one feet, give a singular facility to navigation from the Elbe to the Havel.

A similar navigation has been effected between the Sprée and the Oder, by means of a small canal, by order of the elector Frederic William, whose name it retains. It is about three German miles in length, and its depth is five Rhenish yards. At Mülrose, a town near the middle of the canal; the stream of Schulabbe falls into a lake, from which the canal is supplied with water. It passes through ten sluices placed at regular intervals, and its fall, throughout its whole length, is supposed to be not less than sixty-two feet. Another canal, called the canal of Finow, unites the Havel with the Oder, taking its direction from Liebenwalde towards Oderberg, after having crossed the river Finow: it has thirteen sluices, and was cut by order of king Frederic II., about the same time with the canal of Planen. In a course of about twelve thousand Rhenish miles, it has a fall of 130 feet.

Another canal was made in the year 1753, called the new canal of the Oder. It draws its waters from that river near Gustebiese, and pours them into it again about a mile below Oderberg. There are likewise in the Marquisate of Brandenburg a number of lakes, some of which are united by canals, or natural channels. Neither the Elbe nor the Oder abound so much with fish as the Havel, the Spree, and the other small rivers: and the same analogy holds with regard to the lakes.

Brandenburg is said to have been occupied by the ancient Suevi, of whom there were several colonies or subdivisions. This country must have been known to the Romans, who, about the commencement of the Christian æra, pursued their conquests as far as the Elbe. Their progress in this direction was checked by the barbarous but valiant inhabitants, by whom it continued to be occupied till the fifth century, when they pushed farther to the south, abandoning their own country to the Veneti or Wendi, a Sarmatian tribe, whose language corresponds to that of the Poles, Russians, Bohemians, and other Sclavonian nations, and who, under the general name of Sclavi, occupied not only Brandenburg, but the whole tract of country situated between the Elbe and the Vistula. With these people, who were inveterate enemies to the Christian religion, the kings of the Franks waged perpetual war; and to reduce them to subjection was always a grand object with Charlemagne and his successors. They maintained an obstinate struggle for their independence till the year 927, when they were finally subdued by Henry the Fowler, who compelled them to adopt the Christian religion, and bestowed their country on his brother-in-law Sigefrid, a Saxon Count, with the title of Margrave or lord warden of the marches or borders. Sigefrid new-peopled his dominions from the Netherlands, Westphalia, Franconia, and Saxony; and soon after this conquest, the Saxon emperors established the four Margraviates of AUSTRIA, of the EAST, (or Misnia and Lusatia) of the NORTH, and of SCHLESWIG, to defend the frontiers of Germany against the Huns, Sclavonians, and Danes. The Margraviate of the north was established for the purpose of opposing the Sclavonians of Brandenburg; and the dignity of Margrave continued to be conferred by the emperors at pleasure, till Albert, of the house of Anhalt, surnamed the Bear, obtained possession of Brandenburg the capital, about the beginning of the twelfth century, and as a reward of his valour, was made by Conrad II., hereditary Margrave of the kingdom, which he had subdued. Albert conquered all the country between the Elbe and the Oder, converted the Sclavonian inhabitants to Christianity, peopled the country with a numerous colony of Germans, whom a great inundation had compelled to emigrate from Holland, and thus became the true founder of this Margraviate, which was possessed by his descendants till the year 1340, when the family became extinct. The emperor Louis of Bavaria, then reigning, conferred the Margraviate of Brandenburg on his son Louis. It remained in the house of Bavaria only till the year 1373, when Otto of Bavaria sold it for 100,000 florins of gold to the emperor Charles IV., king of Bohemia, of the house of Luxemburg. The emperor of Sigismund, the son of this Charles, after having alienated the New Mark and other valuable parts of Brandenburg, sold the remainder for the enormous price of 400,000 ducats, to Frederic, Count of Zollern, and burgrave of Nuremberg, an able prince, who had established the weak Sigismund on the imperial throne, and supported him there by his valour, his prudence, and his treasures. This Frederic is the ancestor of the present royal family of Prussia. The princes of this house soon recovered the alienated territories of Brandenburg, and enlarged them by the gradual accessions of Pomerania, Prussia, Silesia, the duchy of Magdeburg, the principality of Halberstadt, the duchy of Cleves, the countries of Minden, Marck, Ravensberg, Lingen, Meurs, Ostfrisia, Neufchatel, Glatz, part of Lusatia, and of the palatinates of Posnania and Uladislaw. These were the component parts of the Prussian monarchy, which, under the illustrious Frederic II., performed so brilliant a part in the transactions of Europe. The glory of this kingdom, however, was but short-lived; and the failure of the Prussian arms in France and Poland during the reign of his nephew, soon convinced the world, that the machine owed all its energy to the great Frederic's mighty and animating soul. See PRUSSIA.

The king of Prussia, as elector of Brandenburg, possesses the seventh place among the electors of the empire; and has five voices in the college of princes at the diet of the empire, independently of his voice in the electoral college. As arch-chamberlain, he carries the sceptre before the emperor at his coronation, and brings him water in a silver bason. He enjoys, likewise, the right of levying customs, in virtue of a particular privilege granted by the emperor Frederic III. in 1456, by which that emperor assigns to the electors of Brandenburg, an unlimited power of raising and establishing customs and tolls.

The states of Brandenburg consist of the nobility and towns, who assemble at Berlin, and who still retain some shadow of their ancient privileges. The hereditary officers of the marquisate are a marshal, chamberlain, cup-bearer, purveyor, sewer, treasurer, and ranger.

The inhabitants in general follow the Lutheran religion, but the religion of the coast is Calvinism. There are likewise a considerable number of Roman Catholics; and all enjoy the most perfect liberty of conscience. Population 755,577. See *Memoires de la Maison de Brandebourg;* Busching's *Geography;* and Peuchet's *Dictionnaire,* &c. (*k*)

BRANDENBURG, an ancient city in Germany, and formerly the capital of the marquisate to which it gives name. It is situated in the Middle Mark, upon the banks of the Havel, which divides the old town from the new, and is here large enough to be navigated by boats of considerable size, which ply hither from the Elbe by means of the canal of Planen. The streets of the new town are straight and beautiful. The principal curiosities and public buildings are, the House of Invalids, the barracks, the bridge over the Havel, the church of St Catherine, remarkable for its antiquity, its library, and its baptismal founts; the cathedral at Bug-Brandenburg, and the pictures of Lucas Kranach; the college of the nobles, and the antiquities of the cloister. This town carries on a considerable commerce both by land and by water; and it reaps considerable benefit from the fishery on the Havel and the other streams and lakes by which it is surrounded. A great proportion of the inhabitants procure subsistence by the culture of hops, with which they brew an excellent beer, which is in great request not only in the town, but in the neighbourhood. There is besides a colony of French refugees in this town, who have established manufactures of woollen cloths, hair cloths, serges, stockings, canvas, linen cloths, fustians, &c. Brandenburg was erected by the emperor Otho I. into an episcopal see under the jurisdiction of the metropolitan of Magdeburg. This see was abolished, however, at the Reformation in 1563. The chapter, which has been since secularized, and which still subsists, is composed of a Lutheran provost, deans senior, sub-senior, and three other canons. The members of this chapter are distinguished by a cross of gold, enamelled with violet, and terminating in eight points; an honour conferred by Frederic II. In a fort, which is separated from the town by the Havel, there is a cathedral church, with residences for the members of the cathedral; and a riding school for the instruction of young noblemen. The municipal revenues of this town amount to about 60,000 rix dollars. Population about 1200. See Reichard's *Guide des Voyageurs,* v. 2. p. 311. (*k*)

Brandon, Brandy.

BRANDON, a market town of England in Suffolk, situated on the banks of the lesser Ouse, which is crossed by an ancient bridge, on which there was a hermitage in 1406, belonging to the bishop of Ely. It carries on a considerable trade in corn, malt, timber, iron, bricks, &c. which is much facilitated by the river being navigable from Lynn to Thetford. There are very extensive rabbit warrens in the vicinity of the town. Number of houses in 1801, 203. Population 1148, of whom 1058 were employed in trade and manufactures. (*j*)

BRANDY, a spirituous liquor produced by the distillation of wines, is prepared in most of the wine countries of Europe. The principal manufactures of this spirit are in France, particularly in Languedoc and Anjou, from whence comes the well known Cogniac brandy. The apparatus for the distillation of brandy is extremely simple, and is composed of three parts: the *alembic,* a cylindrical copper boiler for containing the fermented wines, is enclosed in brick-work in the usual manner of fixed boilers, and furnished with a proper fire place, with a flue and dampers. It is about 28 inches in height, and 28 in diameter, and holds nearly 320 quarts. It is flattened at the bottom to present a larger surface to the fuel, and is drawn out into a neck about 2 inches high and 9 in diameter. To this neck is fitted the *capital,* which receives the spirituous vapour. It has the form of a flattened cone with the apex downward, and is about 17 inches wide at the base. It is truncated at the place where it joins the alembic, and where it has also a projecting tube of 1½ inch in diameter, which conveys the vapour into the *worm.* This is a convoluted pipe immersed in a large tub of water to condense the vapour, and makes six or seven turns before it reaches the bottom. The diameter of this pipe gradually lessens from where it joins the capital to its mouth, where the liquor runs out, which is about one inch wide.

The liquor, from the time it begins to run off, gradually decreases in strength till the wine is entirely exhausted of spirit, and then it becomes almost tasteless, and is little better than water. From this inequality, a distinction is always made between the good spirit and the *petite eau*, as the French call it, or what is termed *feints* by the British distillers, which last is kept in separate casks, and redistilled in the next process. The precise time, however, of collecting the *feints*, is altogether arbitrary. In some places it is determined by the specific gravity of the spirit already run off. In Spain and Portugal, the sinking of olive oil in the liquor is the established proof: and others determine it by the proportion of brandy obtained to the quantity of wine put into the alembic. But this last proof, though frequently used, must be far from being correct, as the quantity of good spirit depends entirely upon the quality of the wines, and the produce varies from a third to a fifteenth of their weight. Strong heavy wines give the most spirit, and light thin wines, though well fermented, yield the least; and if the quantity of brandy be less than a sixth, it is supposed not to be worth the expense of distillation. In the extensive brandy distilleries of Catalonia in Spain, the wines generally used yield about a fifth of spirit of olive-oil proof, and as much of feints for redistillation, and the general average of product from the wines of the south of France is about a fourth.

The burnt taste which is common to most exported brandies, and considered by many as an excellence, is much disliked by the most delicate judges in the wine countries, and is supposed to be produced by boiling the wine with too much vehemence, or, according to Chaptal, by the decomposition of the *malic* acid contained in almost all wines, and which partly rises with the distilled spirit.

Brandies, distilled from the richest and fullest bodied wines, have in general a very unpleasant flavour, which is supposed to arise from an essential oil found most abundantly in such wines; and the most effectual method of destroying it is by adding a quantity of water, which separates the oil from the spirit, and a cautious redistillation.

Brandy of an inferior kind is also made from the *marc*, or refuse of the grapes after the wine has been extracted. This refuse still retains enough of grape juice to be brought into a state of fermentation, and it is estimated, that 32 cubic feet of it will yield about ten gallons of spirit. Considerable difficulties, however, have been experienced in the distillation from marc; and great precautions are necessary in the regulation of the heat, to prevent the marc from adhering to the bottom of the alembic, which not only hurts the flavour of the spirit, but greatly injures the alembic itself. As a remedy for these difficulties, M. Beaume, in his experiments on distillation, recommends the immersion of the alembic in a water bath, which prevents every possibility of the marc being scorched; or, which is more convenient, the interposition of a wicker cradle between the marc and the alembic, about two inches from the bottom.

Though the juice of the grape has always been considered as the only fermented liquor from which this spirit could be properly distilled; yet it was discovered a few years ago by Professor Proust, that brandy of an excellent quality might also be extracted from the fruit of the carobe tree, (*caroubier.*) This tree is very common in the eastern provinces of Spain, and has been hitherto cultivated along all the coast of the Mediterranean merely as food for cattle. The spirit retains a slight odour of the fruit, but is in no way disagreeable to the taste; and the Professor found, that five pounds of dried fruit produced a quartillo (about the bulk of a pound of water,) of very good brandy.

Brandy, when it comes from the worm pipe, is pure and colourless as water; and the colour, which is given it by the merchants, is produced partly by the oaken casks in which it is kept, but chiefly by the addition of saunders wood, burnt sugar, and other colouring matters. These, however, do not in the least affect the quality of the spirit.

Various methods have been invented for proving the strength of brandy; but as all of them are of a general nature, and apply to other spirits as well as to brandy, they will be more properly introduced under the article DISTILLATION. One test, however, we may mention, which is confined entirely to this spirit, and was long considered by the brandy merchants, both in England and on the Continent, as the most infallible proof of the genuineness of brandy. By this they could not only distinguish French brandy from malt spirits, but likewise what was genuine from what was adulterated. The experiment is made by introducing two or three drops of a certain liquor into a glass of brandy; if the brandy be genuine, a beautiful blue colour immediately appears at the bottom of the glass, and when stirred tinges the whole of an azure; but if it be malt spirits, no such tincture is to be seen. By this means they also pretend to judge, by the various hues which it assumes, of the different degrees of adulteration. This liquor, which was considered as a grand secret, was discovered by M. Neuman, to be merely a solution of iron in a vitriolic acid; and he has shewn, by numerous experiments, that, as a test, it is both false and fallacious; as the effect is produced entirely upon the colouring of the spirit, not upon the spirit itself. See Aikin's *Dictionary of Chemistry and Mineralogy*: *Philosophical Transactions*, vol. xxxiii. p. 398; and Nicholson's *Journal*, vol. ix. p. 302. (*p*)

BRASIL,

A VAST region of South America, extending from the equator to the 33d degree of south latitude, and from the 35th to about the 56th degree of west longitude from London. It is bounded on the north by the river of the Amazons, which separates it from Portuguese Guiana; on the south by the Spanish settlement of Buenos Ayres, which prevents it from absolutely reaching the Rio de la Plata; on the east by the Atlantic Ocean; and on the west by the Spanish back settlements of Peru and Paraguay, from which it is separated by a rude and ill-adjusted boundary. So far as can be calculated from its imperfectly defined limits, it is 2300 miles in length and 1500 in breadth. This vast region is endowed by nature with the most exuberant fertility, and capable of every production by which the finest climates of the world are adorned and enriched. Its forests produce every variety of timber which can be employed either for ornament or use; and the bowels of the earth contain treasures more glittering, though less truly valuable. Gold and diamonds, the first of the metals and of the precious stones, are produced more abundantly in Brasil than in any other region of the world.

Notwithstanding these vast capacities, however, Brasil, when first visited by Europeans, was almost a desert. Its vast plains were covered with impenetrable woods; and its subterraneous treasures were known only by the grains of gold dust occasionally washed down by the rivers. Over its wide extent wandered a multitude of scattered tribes, without agriculture, without arts, without government, and exhibiting human society in almost the rudest of possible forms. As it has always, however, been considered by philosophers an interesting object to trace the progress of man even in its earliest stages, the condition and character of these nations have attracted general attention, and may deserve to be exhibited at some length.

The physical constitution of the native Brasilians is generally represented as excellent. Open air, continual exercise without exhausting fatigue, and a simple diet, preserve them from most of the diseases to which Europeans are incident. Notwithstanding continual exposure to the sun, the colour of their skin was not darker than that of the southern nations of Europe. It was very rarely that persons are to be seen among them with any bodily defect; but this circumstance, which is common to most savage tribes, may perhaps be accounted for in a way little flattering to their condition. The hardships and rapid migrations to which they are liable, might be such as persons originally infirm could not survive; hence those only whose constitution was originally sound and entire, were enabled to arrive at the age of manhood. In one respect, they were the rudest of all the American tribes. They went without any clothing whatever, even on those parts of the body which modesty most required should be concealed. They removed also all the hairs from their body, even those of the eye-brow and eye-lids, though the women retained that which grows on the head. To these habits they were so much attached, that all the efforts of Europeans to persuade them to make use of clothes, proved uniformly fruitless. Even those who had been taken prisoners and employed in labour, though compelled by severe whipping to put on some articles of European dress, never failed, as soon as they were set at liberty for the evening, to throw them off as shackles, and enjoy themselves for some time in their original freedom.

Ornaments.

Although, however, they rejected all covering, they were not the less attentive to the embellishment of their persons. They painted their bodies with various colours, and covered them with grotesque ornaments of bone, shells, and feathers. The men painted their whole body except the face black, either for the purpose of concealment, or for rendering their appearance terrible to their enemies. Upon this ground, however, they drew layers of various ornamental colours. Among their favourite ornaments were necklaces and bracelets, made of bone or polished wood, which hung down upon their shoulders, and even their breast. War, or feasting, were the two great occasions on which they arrayed themselves in all this splendour.

This love of dress, as is usual among nations completely savage, was chiefly conspicuous in the male sex. The women, who were treated as inferior beings, and on whom most of the labour was devolved, had little opportunity or temptation to spend their time in adorning themselves. They used, however, the same species of ornaments as the men, with the exception of plumes, which are peculiar to the latter; and they shewed a peculiar avidity for every thing out of which necklaces could be made.

Agriculture.

Their agriculture, though entirely rude, was however, from the excellent fertility of the soil, sufficient to maintain them in abundance. The day's work of one man is said often to have produced as much as would supply him with food during the whole year. The manioc, and other roots resembling it, were the substances chiefly cultivated. These, after being dried and reduced to powder, were boiled into a thick substance, which, after being cooled and preserved, bore a great resemblance to bread. When setting out on a war or hunting excursion, they boiled it till it became hard, and could thus be kept for a considerable time. All these offices fell to the lot of the females; and they too had the care of preparing that fermented liquor in which these people were accustomed to indulge with the utmost avidity. The preparation was made in a manner sufficiently disgusting. After the roots had been softened by fire, the women seated themselves round the pot, put the different pieces successively in their mouth, chewed, and then spit them into another vessel. This delicious pulp was afterwards boiled a second time, and being poured into earthen vessels, speedily fermented, and produced that liquor, which formed the principal delight of savage banquets.

Religion.

It has been currently asserted by travellers, that the Brasilians, differing from the most barbarous people, are wholly destitute of religious ideas. They are said to have no idea of a Divinity, no tradition respecting the origin of the human race, and no expectation of a future state of rewards and punishments. These assertions, however, are positively contradicted by the very travellers who make them, in other parts of their narrative. The Brasilians had, indeed, no temples, no sacrifices; none of that pageantry with which religious belief is usually accompanied among civilized nations. Neither had they ideas of the Deity, or of a future state, exactly corresponding to ours. Hence, to a superficial eye, they might appear destitute altogether of principles so deeply rooted in the human mind. But on a closer examination, it soon appears, that they were fully impressed with the belief of powers and beings superior to man, and with that of a certain mode of existence beyond the grave. Their notions on these subjects were, doubtless, extremely rude and uncouth; but on this ground, the most civilized nations, unenlightened by revelation, could have little room to reproach them. The first objects which excite in untutored minds the idea of a superior power, are the great and active phenomena of nature, particularly those which move in the higher regions of visible space. Thunder, whose effects are everywhere striking, and peculiarly so in a warm climate, had attracted, in a remarkable degree, the adoration of the Brasilians. They had endowed it with mind, and viewed it, not only like other nations, as a formidable, but also as a beneficent power. To it they considered themselves as indebted for whatever they knew of the science of agriculture. The sun and moon, almost universal objects of idolatrous worship, had also attracted their attention. At certain periods, they raised their hands to them in a suppliant manner, with gestures and cries expressive of the profoundest veneration. They had conjured up to themselves a race of evil beings, called Aignans, by whom they often fancied themselves to be beaten and scourged with the utmost severity. They entertained also notions of a future state. Some they believed were transported after death into plains of inexpressible beauty, where they spent their time in dancing, and were lavishly supplied with every means of enjoyment. The same traveller (Lery), who so inconsistently represents them as entirely devoid of religious ideas, mentions elsewhere his having heard one of their songs, in which, after lamenting the death of their ancestors, they console themselves with the hope of a future and joyful meeting beyond the lofty mountains. Others, on the contrary, are shut up in gloomy abodes, where the Aignans torment them without intermission. They were not even entirely destitute of a priesthood; some offices of which were performed by their jugglers or conjurers, who are supposed to possess powers more than human, and to hold intercourse with invisible beings. At their dances, which, at the same time that they afforded one of their highest enjoyments, were considered as religious ceremonies, several of these jugglers always presided. During the intervals of dancing, the conjurer carried about wooden poles stuck round with fruits, and having a hollow filled with tobacco, which he set fire to, and breathed upon all present, pretending that through this medium the *spirit* infused force and vigour into them. Ridiculous as was this custom, it still seems to intimate a belief, not only of a superior, but of an immaterial being, with whom these uncouth ministers held intercourse. Besides presiding at these ceremonies, the conjurers were also believed to have the power of foreseeing, and even of producing future events: in cases of disease, their aid was particularly sought. These supernatural powers which they were believed to possess, made them be courted and caressed by all who laboured under any distress; but when the event did not correspond with the expectation of their votary, the failure was attributed to the conjurer, and he suffered often severe vengeance from his disappointed dupe.

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Besides being without religion, they are represented also as having been without government; and this last allegation seems to have rested on a better foundation than the other. No nation seems ever to have subsisted in a more perfect state of equality, or with fewer outward marks of subordination. They had chiefs; but the small degree of obedience which they paid seems to have been so entirely voluntary, as hardly to imply any degree of subjection. To secure success in their warlike enterprizes, a leader was indispensable; and the bravest and wisest was naturally selected for that high office. As their expeditions were carried on rather by skill and stratagem than by open force, prudence and judgment were important qualities; and in a society where there was no other mode of acquiring information except by experience, age necessarily involved a superiority; hence their old men were the chief objects of their respect. A peculiar reverence was paid to those who had distinguished themselves in war, by the number of men whom they had slain, or of the captives whom they had taken. These old men supported their influence by the arts of oratory, which made a powerful impression on savage minds. Their speeches were chiefly animating them to valour, and to revenge the death of their countrymen. They were particularly eloquent on their march to the scene of action, when the party often stopt for whole hours to listen to these rude harangues. With war, the slender portion of authority which its exigencies had conferred, entirely ceased; and every one lived in his cottage, in a state of entire independence.

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It thus appears, that war was the tie which united them in the bonds of political society: it was also their grand and favourite occupation; the object for which they existed. The inhabitants of Brasil were divided into a number of small communities, inflamed with the most deadly hatred against each other; the most ardent wish of each being the utter extermination of its immediate neighbour. The object of these wars, however, was not to extend their territories, which were already wide beyond their power to occupy; neither did the miserable plunder which a savage village afforded, enter at all into their calculation. It was pure and deadly hatred; it was the raging thirst of vengeance, which nothing could appease, but the torture and destruction of its devoted objects. Enmities were propagated in an interminable series; for every act of vengeance called for new vengeance in return; every instance of savage cruelty left an indelible recollection in the mind of the whole tribe, to which *he* belonged, against whom it had been committed. This propensity was doubtless aided by that restlessness and desire of activity, which, in such fierce minds, could be gratified only by occupations of the most turbulent and tumultuous character. The love of military glory also, that favourite passion among all rude nations, entered largely into their motives to war. It was still subordinate, however, to their thirst of vengeance, and the desire of doing execution: the latter passion so far prevailed, as to make them adopt a mode of warfare, which has generally been deemed dishonourable by more civilized nations. They avoided to meet their enemies in the field; they never courted that single combat, which, in a nation governed by honour, is considered as bringing bravery to the fairest test. They conducted their wars by stratagem, by surprize, by ambuscade; they chose the dead hour of midnight to fall upon their unsuspecting enemies; they sought to destroy them, without exposing themselves to danger. This system, however, did not imply the want of courage; when perils met them, however formidable, they faced them with intrepidity; they endured, with the most dreadful constancy, those horrors, to which savage war exposes the vanquished. This care of themselves seems to have been dictated by the necessity of not diminishing the numbers of their tribes, since it was in numbers that its whole strength consisted; and these numbers being slender, would be materially diminished by the loss even of a very few members. This method had also the effect of rendering the blow struck against their enemies more sure and effectual; it prevented flight or resistance; it rendered their destruction sudden and entire. When one of their expeditions was determined upon, the old men arranged the time and mode of procedure; they gave the signal for setting out, and were followed by the rest, with the most rapturous acclamations. Having laid up provision sufficient to last for a considerable time, they proceeded by the most unfrequented paths, in profound silence, till they arrived at the hostile frontiers. There they left the women, children, and all those who were unfit for service; and the chosen warriors of the nation proceeded to the scene of action. When they approached the village on which the attack was to be made, they concealed themselves more carefully than ever. Taking their station in the thickest woods, they watched the opportunity of finding the enemy completely unprepared. The time favourable for this purpose was of course the night, when the enemy were buried in sleep, and unconscious of impending danger. Notwithstanding dreadful and continually repeated examples, these nations had never adopted the obvious precaution of stationing a centinel to warn them of an approaching enemy. The attack, therefore proved generally successful; the inhabitants were roused from profound slumber by the yells of their destroying foe. A scene then ensued, the horrors of which no pen can describe. The victims, unprepared, unarmed, defenceless, fell unresisting into the hands of their enraged and unrelenting enemies. In vain did their cries rise to heaven; vain was all supplication; neither age nor sex afforded shelter from the utmost excesses of cruelty; and the victors exhausted themselves in inventing new forms of inhumanity; they devour in their fury portions of the mangled victims, while they reserve the survivors for a more lingering fate. The number of prisoners taken was, indeed, the criterion by which their warlike exploits were chiefly valued. The arrival of a numerous band doomed to destruction, secures them a joyful reception from that part of the community who had been left at home, and who were eagerly waiting their return. These unhappy men were reserved for a festival, the most horrible and the most disgraceful to human nature. To devour the flesh of their enemies, amid savage pomp and acclamation, was considered as the utmost height of human triumph. They did not, however, proceed immediately; nor did they, unless to a small extent, in the first frenzy of battle, feed on the bodies of enemies slain on the field. They reserved the living captives for an august solemnity, at which the whole nation was called to assist. Previous to this awful day, the prisoner was treated with every mark of kindness and favour. His wants were liberally supplied; he was allowed to accompany them in the exercises of hunting and fishing; and the person to whom he belonged hesitated not to give him one of his own nearest relations as a wife, during the short period that he had yet to live. All this previous kindness, however, seemed to be bestowed only to render his fate, when it arrived, more dreadful. Immediately previous even to the fatal moment, several days were devoted to feasting and profuse conviviality, in which the captive was admitted to share. All his study, then, was to shew the most entire indifference to his approaching fate, and the proudest defiance to the enemies among whom he was seated. He was the gayest of the company; he boasted aloud of his warlike exploits, and particularly of such as have been performed against those by whom he is surrounded. He was then fixed on a scaffold, and, by a whimsical indulgence, a number of stones were placed beside him, with which he was allowed to do all the mischief in his power. Then the person who was to execute his doom stept forth. This office was considered as peculiarly honourable, and was assigned to the most distinguished character in the nation. This person comes in his most splendid war dress, waving with varied coloured plumes, and with a large club in his hand. He then addresses the captive: "Here am I, that have killed many of thy nation, and will kill thee:" to which the other replies, "You do well, I have slain a multitude of your countrymen and have devoured them; you do well, but my death will be revenged." After this mutual defiance, the fatal blow is instantly struck; and after the necessary preparations, the inhuman feast begins, amid universal delight and triumph. The bones are carefully preserved, and are fashioned into various ornaments of necklaces, bracelets, and musical instruments. The heads are also preserved, and piled up in a corner, to be shewn to every stranger, as testimonies of their prowess and success.

Their arms were necessarily imperfect from their ignorance of iron; yet they had called forth the utmost exertions of savage ingenuity. The most important, was a species of club, called *taeape*, formed of Brasil wood, or of a species of black ebony, very weighty, round at the extremity, and sharp at the sides. It was six feet long, and about an inch thick. They had shields made of skins, broad, flat, and round. For missile weapons, they had arrows, composed of the same hard wood with their clubs. The strings were made of a particular species of grass, and twisted so strongly, that a traveller declares, a horse might draw by them. Their arrows were six feet long; the head and point formed of black wood, the middle of common wood, and these different pieces are very neatly joined with thin bark of trees. They had two pennons, each a foot long, neatly tied with cotton thread. They were pointed, either with bone, with hard and dried canes in the form of a lancet, or with the tail of the ray fish, which has a strongly poisonous quality. They had also a certain species of military ensigns, and drew a warlike music from flutes made of the bones of their enemies.

Battles.

Although they preferred the mode of warfare by ambuscade, yet, in case of necessity, they hesitated not to meet their enemies in the open field; and a most extraordinary spectacle then ensued. A French traveller, who was an eye witness of one of these combats, has given a very curious and lively description of it, which we shall translate for the use of our readers, preserving, as much as possible, the *naiveté* of the original.

"Having been myself a spectator," says Lery, "I can speak with truth. Another Frenchman and I, though in danger, had we been taken or killed, of being eaten by the Margajas, had once the curiosity to accompany our savages, then about four thousand in number, in a skirmish which happened on the sea coast; and we saw these barbarians combating with such fury, that people mad or out of their senses could not do worse. First, when our people had perceived the enemy at about half a quarter of a league's distance, they took to howling in such a manner, that though it had thundered in heaven we should not have heard it. According as they approached, redoubling their cries, sounding their drums, stretching their arms, throwing out dreadful threats, and showing to each other the bones of the prisoners whom they had eaten, and even their teeth strung together hung round their neck: it was horrible to see their countenance; but it was much worse when they came near each other; for, when at the distance of two or three hundred paces, they saluted each other with great showers of arrows; and by the first discharge, you would have seen the air entirely loaded with them. Those whom they struck, tore them from their body with wonderful courage, broke them, bit them with their teeth, and failed not to make head in spite of their wounds; upon which, we must observe, that these Indians are so furious in their wars, that so long as they can stir legs or arms, they cease not to combat, without retreating or turning their backs. When they were joined in battle, you might then see them wielding, in their two hands, wooden clubs, and charging so furiously, that he who met the head of his enemy, not only threw him on the ground, but felled him, as butchers do oxen. You will ask what my companion and I did during this rough skirmish? To conceal nothing, I answer, that satisfied with our first folly, which was to risk ourselves with these barbarians, and keeping in the rear, we were only occupied in viewing the blows. But though I had seen men at arms in France, both on foot and horseback, I must say, that the polished movements, and glittering armour of our Frenchmen, never gave me so much pleasure as I had then in seeing the savages combat. Besides their leaps, their hissings, and their skilful thrusts, it was a wonderful spectacle to see flying in the air so many arrows, with their great pennons of plumes, red, blue, green, carnation, and other colours, amid the rays of the sun, which made them glitter, and to see also so many helmets, bracelets, and other ornaments, made of these natural plumes, with which the combatants were covered.

"After the combat had lasted about three hours, and that there had been a good number killed and wounded on both sides, our Topinamboux having at last gained the victory, made prisoners of more than thirty Margajas, men and women, whom they carried away into their country; and although we two Frenchmen had done nothing but hold our naked swords in our hands, and fire some pistol shots in the air to encourage our men, we saw that it was impossible to do them a greater pleasure than to go to war with them; for they esteemed us so much afterwards, that in the villages which we frequented, the old men always testified more friendship to us.

"The prisoners having been placed in the middle of the victorious band, bound, in order to secure them the better, we returned to our river of Janeiro, in the neighbourhood of which these savages inhabited. As we had gone twelve or fifteen leagues, ask not, if, in passing through the villages of our allies, they came not out to meet us, dancing, leaping, and clapping their hands to applaud and caress us. The poor prisoners were obliged, according to their custom, when they were near the houses, to sing and say to the women, 'here is the food which you love so much coming to you.' To conclude, when we were arrived before our isle, my companion and I went into a bark, and the savages went away, each to their residence."

In order to guard against the attacks with which they were constantly threatened, the Brasilians were accustomed to fortify their villages. The interior inclosure was composed of a strong pallisade, before which was thrown up a wall of loose stones. The houses were pierced with holes, through which arrows could pass. A Portuguese force which attacked one of these forts, found its reduction extremely difficult. In consequence of the furious sallies of the Indians, they were obliged to entrench themselves, and wait the arrival of succours from the metropolis. Having covered themselves, however, with hurdles of canes, which secured them against arrows, they at last forced the walls, and became masters of the place.

Dom
life.

This desperate ferocity with which the wars of these savages were conducted, might naturally lead to the expectation, that their domestic intercourse would present a similar scene of violence. Here, however, a remarkable contrast was presented. Although there existed no regulations for securing internal tranquillity; although the chiefs possess no power, unless in war, and never interfere in private quarrels; yet no bad consequences are felt; the most perfect peace, the most profound harmony, reigns in all their villages. A traveller, who resided more than a year among one of the fiercest of these tribes, was witness, during that time, only to two quarrels. In their sickness, they received from each other the most tender attention; and all the offices of friendship were mutually performed with zeal and fidelity. This internal union, so remarkably superior to what would be found among the most polished nations, if freed from the restraint of law, seems derived, in a great measure, from the fierceness of their animosity against their neighbours and enemies, and the continual danger to which they were exposed from them. A common sentiment of fear and hostility diffused through all the members of the society, proves the most powerful bond of union between them. In these wild and ardent natures, the sentiments of attachment and tenderness are as strong as those of hatred and vengeance; and all the force of the latter being turned in another direction, the former alone are felt towards their kinsmen and countrymen. To avenge such of these as had been the victims of the barbarous ferocity of their enemies, was the motive which, rankling continually in their minds, impelled them to such incessant and dreadful warfare. When the orators wished to animate their valour, it was by reminding them of their relations, who had been slain and devoured by the tribe against whom their arms were directed.

The laws of hospitality have always been held in peculiar veneration among rude nations. The rare appearance of travellers, the helplessness of their situation, and the absence of all motives to enmity against them, excited that natural disposition to kindness which exists in these tribes, when not embittered by the belief of real or imagined wrongs. This law of hospitality was established in full force among the Brasilian tribes. The stranger was received not only with kindness, but with rapture, and was loaded with every distinction which it was in their power to bestow. When a stranger arrived at a village, he chose the person with whom he was to lodge, who was called his *moussacat;* and, in all future visits, he must choose the same person, by whom his going to any other would be considered as a serious affront. As soon as he entered, the women crowded round him with the most flattering expressions of kindness and of gratitude for his having taken up his abode in their house. The master of the dwelling then stept forward, and received him with a graver welcome. Was he hungry or thirsty, the best that the house contained was prepared and set before him; and his hosts stood round in a circle, to keep off the children, or whatever could occasion disturbance. At night, the best hammock was spread for him; and, with even superfluous attention, small fires were kindled near it, and kept up during the night; on the morning, the host was at hand to inquire how he had slept. In short, a traveller declares, that he felt more secure among the savage Brasilians, than among his countrymen at home, who were then torn with religious dissensions.

Manners of the women.

In their domestic manners, and the intercourse between the sexes, the Brasilians were far from being dissolute. The unmarried females, indeed, were under little restraint, though this we suspect to have been chiefly in regard to Europeans, to whom the same rules of morality were not, among the inhabitants of the New World, supposed to apply, as to their own countrymen. After marriage, however, the most rigid propriety of behaviour was observed. A savage custom required of every man, as a necessary preliminary to his entering into that state, to have first taken a captive, and given him to the nation to be devoured. Marriage could be dissolved at pleasure, and polygamy was considered lawful, though it was practised only by a few of the chiefs. Notwithstanding the entire want of covering, the utmost decency was observed in their outward deportment.

Intoxication.

The vice of intoxication is very general among savages. The vacuity of their minds, the want of regular amusement and occupation, makes them eagerly grasp at whatever can give an impulse to the animal spirits. The Brasilians had invented a species of fermented liquor, the manner of preparing which we have described above; and they indulged in it with an excess and fury of which civilized nations can with difficulty form an idea. Days and nights were consumed in the gratification of this propensity; and so long as a drop remained, they never desisted. Lery, after enumerating all the nations most noted for drinking, calls upon them to yield the palm to the Brasilian savages.

Dancing.

On fixed days, they assembled for the purpose of dancing, which, as formerly observed, served at once as an amusement, and as a religious ceremony. It was practised in a manner extremely singular and uncouth. The men, women, and children, formed three separate parties, who were each placed in a house by themselves. They began with wild howlings, which were soon followed by softer and sweeter notes; they then arranged themselves into circles, and without moving from the spot, placed themselves in a variety of attitudes, mixed with leaps and gestures. In the midst of each circle stood a juggler, who performed a multitude of superstitious ceremonies, which have been described under the head of religion. They were continued usually for six or seven hours.

Habitations.

The Brasilians lived in villages, two or three of which constituted a nation. In each village there were only three or four houses; but these structures were extended to a great length, and contained sixty or seventy families. Each family had a certain space allotted to it, but without any partition to separate it from the rest. One village, seen by a traveller of the name of Knivet, though consisting only of four houses, arranged in the form of a square, was estimated to contain 4000 inhabitants. The interior of these houses presented a singular spectacle, from the multitude of human beings crowded together, with their arms, implements, and grotesque ornaments, irregularly disposed. The outside was covered with grass and shrubs.

Language. A traveller has given us some specimens of their language, which, like all savage dialects, is extremely concise. The tenses of their verbs are as numerous as those of most other languages; and they have even the optative mood, which is wanting in the Latin, and in the languages of modern Europe. These tenses, however, are formed, not by inflexions of the verb, but by particles added. Thus *Aiont*, I come; *Aiont aquoémé*, I came (veniebam); *Aiont aquoéméne*, I came (veni); *Aiont vien*, I will come; *Aiont momen*, would I could come. They had no names for numbers above five; if they wished to express any higher, they pointed to their fingers; or, if these were insufficient, collected the fingers of the bystanders, till they amounted to the proposed number.

Names of tribes. The Brasilians were divided into an immense variety of tribes, many of which have been enumerated by different travellers. Our readers, however, would not, we presume, think themselves obliged to us for calling over a roll of barbarous appellations. There were several races, however, which, while they retained a common name, had branched out into a variety of different tribes. Of these the most noted were the Taperyas and Topinamboux. The former were chiefly found on the northern frontier, though they had extended themselves along the whole coast of Brasil; the latter had their chief settlements in the bay of St Salvador. The Molopagues and Motayes had established themselves on the river Paraiba, in the captainship of Spiritu Santo. There were minute shades of difference in the character and habits of all those people; but the general aspect which they all presented was very nearly the same.

Discovery. Brasil was not among the first discovered countries of the new world. Columbus, in his search after the East Indies, then accounted the grand source of wealth, landed first among the islands in the Gulf of Mexico; and having once formed an establishment there, he made it the centre of his farther discoveries. He contented himself therefore with exploring the coasts of the continent around that gulf; and when, in his third voyage, he had proceeded as far as the Oronooko, and had landed on the island of Trinity, he immediately measured back his steps. After the golden treasures of Mexico and Peru had opened themselves to Spanish avidity, the efforts of adventure were entirely turned in that direction; and it was left to chance to discover all the other regions of the new continent. Chance accordingly led Europeans into Brasil. There are some intimations of Vincent Yanec Pinzon, one of the companions of Columbus, having touched on the coast in 1499; where, however, he was prevented from landing by the ferocity of the inhabitants. The solid discovery of Brasil, however, was made in the following year by Pierre Alvarez Cabral, a Portuguese navigator. Vasco de Gama having, by doubling the Cape of Good Hope, opened a new way to the East Indies, Cabral was dispatched with a considerable squadron to improve this discovery, and to form a settlement in these celebrated regions. The discovery of the compass had now emboldened navigators to venture far into the open sea; and Cabral wishing to avoid the calms which reign along the coast of Africa, steered so far west, that on the 24th April 1500, he came in sight of an unknown coast; and after sailing along it for a considerable space, reached a harbour, the commodious appearance of which tempted him to land. He called the country Santa Cruz, (the Holy Cross), and the harbour Pórto Seguro; and then, according to that ill authorised right which Europeans had assumed to themselves, he took possession of the whole in the name of his master. The natives were at first alarmed, and fled to their hills; but the Portuguese, having secured two, presented these with mirrors, brass rings, and bells, which were found to be the ornaments most agreeable to them. Cabral then allowed them to rejoin their countrymen, whose fears were immediately dissipated by this friendly behaviour, and who flocked to the vessel with as much delight and confidence, as they had formerly testified suspicion and aversion. They approached singing and dancing, with all the uncouth gesticulations of savage joy; and an intercourse was immediately opened between them and the Portuguese. Clothes, however ornamental, were found to be of no value in treating with a people who considered the wearing of them as an intolerable hardship; but every article which was capable of being converted into bracelets, necklaces, and other fantastic ornaments, in which they delighted to array themselves, was eagerly prized. In return, the Portuguese received cotton, maize, ornamental woods, and a variety of rare and beautiful birds. Although there was yet no appearance of those treasures which were chiefly prized by European cupidity, and which Brasil was afterwards found to produce in such abundance, yet the extent of the country, its beauty and evident fertility, gave it such importance in the eyes of the Portuguese commander, that he immediately sent back one of his vessels to Europe, to give a report of his new discovery. Emanuel, the most illustrious and renowned of the Portuguese monarchs, was then seated on the throne; and though his views were chiefly directed towards conquest in the East, yet the addition of so extensive and fine a country to his dominions, could not fail to excite his ambition. **Settlements.** Navigators were therefore sent to explore its coasts; and settlements were formed on different parts of their wide extent. It was soon discovered, however, that the sanguine hopes of wealth, which the first settlers carried out with them, were little likely to be realized. Gold and silver were nowhere to be seen; and though the land was profusely fertile, it was totally uncultivated; nor could it be cleared and brought under cultivation, without enormous labour. Parrots indeed and coloured woods might be had unbought, and yielded a considerable profit in Europe, where they were yet rare; but these articles could not be made the foundation of any extensive commerce. What completed the disgust of Europeans at this new territory was, that their slender profits could be earned only by encountering the most formidable dangers. The harmony which had reigned at the first interview between the natives and Portuguese was soon interrupted. The former, we may well believe, found little reason to congratulate themselves on the acquisition of these new neighbours; and passing, with the impetuosity of savage minds, from the extreme of attachment to that of hatred and vengeance, they commenced a furious warfare on the European settlements. Savage valour, even without discipline, rendered the encounters desperate and bloody; the Portuguese were not always victorious; and for those who fell into the hands of the enemy, was reserved a fate at which humanity shudders. Such occurrences soon put an end to voluntary emigration into Brasil; all who pursued the prizes of wealth and ambition, crowded to the more splendid theatre of India, every region of which was then the theatre of Portuguese triumphs. Brasil seemed likely to revert into its original state of desertion; but the Portuguese court, anxious by any means to make something of their acquisition, adopted the scheme of peopling it out of the refuse of the mother country. Wretches, who had forfeited their life to the laws, were, in mitigation of punishment, sent to this new colony: a destination which, as matters then stood, was considered rather as a reprieve from death, than a final deliverance. The Inquisition had just been established in Portugal; and that barbarous tribunal, by creating a variety of factitious crimes, had augmented in an extraordinary degree, the number of persons amenable to the laws. From such causes, the population of Brazil was gradually augmented; settlements were formed in different parts of the coast; and the new planters, doomed alternately to wield the ploughshare and the sword, became a fierce and hardy race, fitted to contend with the difficulties of their situation. The Indians, wrought to the highest pitch of exasperation, exhausted on their invaders all the furies of savage war; while the latter, as if fearing to be outdone, committed atrocities, not perhaps surpassed by those, by which their more celebrated neighbours had marked their conquest over the golden regions of Mexico and Peru. By the relations of travellers which have been handed down to us, it appears to have been their regular practice on storming a savage village, to put to death the old men, children, and all who could be of no use; and to carry the rest into slavery. In process of time, the skill and discipline of the Portuguese prevailed over the savage fierceness of their opponents; plantations were extended, and the sugar-cane being introduced from Sicily and Spain, succeeded in a wonderful degree, and brought large profits in the markets of Europe. The attention of the Portuguese court was at length arrested by the flourishing state of its new colony; and it began seriously to consider, how the greatest advantages could be derived from it. The former contempt, however, in which this settlement was held, had led to measures, which threatened to frustrate the hopes now entertained from it. A grant of land, even on the most extensive scale, had been thought of so little value, as to be readily bestowed on any one who thought it worth the asking. From this reason, almost the whole of that fine settlement had been alienated from the crown, and was in the hands of different individuals. The remedy applied by John III. who now reigned in Portugal, was more conformable to the maxims of state necessity, than to the strict rules of justice. In the year 1549, he revoked, without ceremony, all the grants that had been made by himself or his predecessors; and having equipped a fleet of six vessels, with a number of troops and officers, he gave the command of it to Thomas de Sousa, who went out with the appointment of governor general. He established his capital at St Salvador, in one of the noblest and most beautiful bays in the world, with an admirable harbour, and in the richest part of Brasil. Six Jesuits went out along with the fleet, for the purpose of converting the natives; and the judicious and benevolent labours of these missionaries were not altogether unattended with success. The increase of force, and the regular establishment of law and government, which were the result of these measures, were efficacious in fixing and extending the prosperity of the colony. This very prosperity, however, exposed it to new dangers. The other European powers, all alive to the advantages that were to be derived from establishments in the new world, saw in the wealth and defenceless state of this vast territory, an opportunity of gratifying their ambition. Civil war and religious persecution, which then raged throughout all Europe, produced a vast multitude of refugees, who were anxious to find shelter at the greatest possible distance from their native country. France, accordingly, which was the peculiar theatre of these calamities, was the first country which contested with the Portuguese the possession of Brasil.

Foundation of St Salvador.

French expedition to Brasil.

Durand de Villegagnon was a knight of Malta, and high in the French naval service; but having embraced the opinions of the reformers, and being disgusted with some treatment which he had experienced from his government, he conceived the design of forming a Protestant establishment in the new world. He held out to the French court the mere plan of founding a colony, after the example of the Spaniards and Portuguese. Through the interest of the Admiral de Coligny, who regarded him with favour, and had secretly embraced the same opinions, he obtained the concurrence of Henry II. in this undertaking. He procured two or three well equipped vessels, and having filled them with persons of his own persuasion, set sail for Brasil. He landed at the Rio Janeiro, where he settled his people, and began to build a fort, which, after the name of his patron, he called Fort Coligny. Here he found some Normans, who had been thrown by shipwreck upon the same coast, and, having lived some time with the savages, were qualified to act as interpreters. He then sent back his vessels to receive a new cargo of Protestants. He transmitted formal dispatches to the French king; but those which he wished to be acted upon, were sent to Coligny and his friends at Geneva. A great zeal was immediately kindled for the extension of Calvinism into these remote regions: two ministers, and fourteen students from Geneva, determined to brave all the hardships of an unknown climate, and of a mode of life wholly different from that to which Europeans were accustomed. They repaired to the admiral's seat near Chatillon sur l'Oing, where they were received with the highest distinction. The influence of Coligny, and the uneasy situation of the reformers in France, soon swelled their numbers; and on their road to the place of embarkation at Rouen, new recruits continually presented themselves. Their departure was precipitated by an adventure of no agreeable nature. It having transpired, that they had exceeded the very narrow bounds of the toleration which the law allowed, the Catholic inhabitants of Harfleur, influenced by the most furious intolerance, rose in arms against them; and a desperate conflict ensued, in which one of their best officers was killed, and the rest were saved, only by setting out instantly, and under these disastrous circumstances, for the place of their destination.

A violent storm which this expedition met with on its passage, struck with consternation the majority of the passengers, who had not been inured to the sea. After a long delay, however, they arrived off the coast of Brasil, at about the tenth degree of south latitude. They proceeded along the coast, and after a slight encounter with the Portuguese at Spiritu Santo, reached at length the settlement of their countrymen on the Rio Janeiro. Here they were received with apparent cordiality; but after the first welcome, they experienced nothing but hard fare and hard labour, which few of them, it is probable, were fully prepared to encounter. The Protestant rites, however, were now for the first time celebrated, and with every appearance of zeal and satisfaction on the part of Villegagnon. The Portuguese, meanwhile, seem to have made no efforts to dislodge these intruders, thinking, perhaps, that there was room enough in the country for both. The advantage of this forbearance, however, was entirely lost to the new colony, in consequence of its own internal dissensions. We have only the narrative of Lery, who

Its failure.

was one of those newly arrived; but as his statement was never contradicted, considerable credit is attached to it. Villegagnon, it appears, after having founded his colony upon the basis of Protestantism, began himself to entertain doubts upon the most essential principles of that creed. He cherished peculiar scruples upon the subject of the real presence; and though he could not believe that Christ was really present in the sacraments, yet neither could he be satisfied that he was not. He began also to suspect that the wine ought to be diluted, and that salt and oil ought to be mingled with the water of baptism; and having introduced innovations conformable to those opinions, he soon excited a violent discontent among his followers. Those newly arrived from Geneva, in particular, who were imbued with the most rigid principles of Calvinism, wholly declined participating in these new rites, which they accounted to be rank Popery, and clandestinely celebrated the sacrament during the night, as was done by their persecuted brethren in France. Villegagnon, on discovering these proceedings, was extremely chagrined, and mutual irritation, daily increasing, rose at length to such a pitch, that he resolved to expel them entirely from the fort, and force them to return to their native country: declaring, that if their arrival had caused him much satisfaction, their departure was still more agreeable. The unfortunate Genevese were forced to embark on board a vessel in a very bad state of repair, as well as insufficiently supplied with provisions. Through the ignorance of the pilot, the voyage was prolonged considerably beyond expectation; and the crew were destined, in consequence, to experience the utmost extreme of human misery. Long before their arrival off the coast of France, their stock of provisions failed; and they were assailed by hunger in its most direful form. Their situation is painted in so lively a manner by one of the sufferers, that we shall translate some passages of his narrative. "After having devoured," says he, "all the leather in our vessel, even to the covering of the trunks, we thought ourselves approaching to the last moment of our life; but necessity suggested to some one the idea of pursuing the rats and mice, and we had the greater hope of taking them easily, because, having no more crumbs, nor any thing to devour, they ran in great numbers, dying of hunger, through the vessel. We pursued them so carefully, and by so many kind of snares, that very few remained. Even in the night, we sought them with our eyes open, like cats. A rat was more valued than an ox on land. The price rose so high as four crowns. We boiled them in water, with all the intestines, which were eaten as well as the body. The paws were not omitted, nor the other bones, which we found means to soften. The extremity was such, that nothing remained but Brazil-wood, the driest of all woods, which many, however, in their despair, attempted to chew. Carguilleray du Pont, our leader, holding one day a piece in his mouth, said to me, with a deep sigh, Alas! my friend, I have due to me in France a sum of four thousand livres; and would to God, that, after giving a discharge for the whole, I held in my hand a pennyworth of bread, and a single glass of wine." Several died of hunger; and they had already begun to form the resolution of devouring each other, when Rochelle appeared in view. They landed; but a number having, after this long abstinence, devoured food with too eager avidity, perished soon after.

Concerning the subsequent fortune of Villegagnon, who appears to have been so ill qualified for the task which he had undertaken, we have few details. After having thus preposterously reduced his strength, he found himself unable to contend with the Portuguese, who at length bestirred themselves in order to expel this heretical colony from their settlements. Villegagnon evacuated the fort on their approach, abandoning the cannon which he had placed on it. The Portuguese thus reaped all the fruits of the French attempts to colonize Brasil; and found established for them a settlement, which they have since erected into the capital of this flourishing colony.

Brasil, however, was too valuable to be left in the undisturbed possession of any one nation. The Portuguese had soon a more formidable and persevering enemy to encounter. In consequence of the rash and fatal expedition of Sebastian into Africa, the immediate heirs to the throne of Portugal failed; and several claimants having started up, Philip II. of Spain, through the great superiority of his power and influence, easily secured the preponderance. Portugal was thus annexed to his dominions. The intolerance and cruelty of Philip, meanwhile, had involved him in a long and cruel war with Holland and the neighbouring provinces; while the efforts to which the latter had been impelled by their zeal in the cause of civil and religious liberty, had raised them to the first rank among maritime powers. The foreign possessions of the crown of Spain were then considered of course as their lawful prey; and the convenient situation and other advantages of Brazil, naturally attracted their attention towards that settlement. In 1621, they had formed a West India company, invested, like all the commercial bodies established at that period, for these distant undertakings, with exclusive privileges. In consideration of this boon, the company undertook to carry on the concerns of war, as well as of trade, in these remote regions. In 1624, they fitted out a considerable armament, which they entrusted to Willekens, one of their most esteemed naval commanders. The success of the expedition was prompt and complete. They landed at St Salvador, the governor of which did not even attempt resistance; all the inhabitants either fled or submitted, and the accumulated wealth of ages fell at once into the greedy hands of the commercial invaders. The whole province followed the example of the capital.

The Portuguese were struck with the deepest consternation, when they learned the disaster which had befallen their country. Their grief was augmented by the strong suspicion which they entertained, that it would be a subject of gratification at the Spanish court; that the humiliation of a people, who submitted with evident reluctance to the Spanish yoke, would, in its eyes, more than counterbalance the loss which had been sustained. If, however, Philip secretly indulged these sentiments, he did not allow them to influence his outward conduct. He sent letters to all the principal Portuguese nobility, urging them to exert themselves in order to retrieve this disaster; and he ordered a Spanish armament to be prepared for the purpose of co-operation. The Portuguese exerted themselves with remarkable zeal, at once to support the honour of their nation, and to disappoint the malignant hopes which they imputed to Spain. In less than three months they had equipped a fleet of twenty-six vessels, with a large force on board, both naval and military; but the tardiness of the Spanish preparations delayed their sailing till the month of February 1626. The whole was commanded by Osorio, Marquis of Valduesa; and the number embarked, including soldiers and sailors, amounted to upwards of twelve thousand.

Meanwhile events in the colony had prepared the way for their success. After the governor and regular force had yielded without any resistance, the archbishop, Michael Texeira, animated by an heroic spirit, rallied round him his clergy and the persons attached to him. With these he retired and fortified himself in a neighbouring post; multitudes flocked to his standard; his strength augmented daily; and from defending himself, he was soon enabled to become the assailant. He began by cutting off the Dutch parties and detachments; he intercepted their supplies of provisions; and he at length succeeded in placing the city under a complete state of blockade. His death, which unfortunately occurred, did not prevent his successors from persevering in the same system. By the time, therefore, that the Portuguese fleet arrived off St Salvador, the place was reduced to considerable straits; and when Osorio had landed 4000 men to co-operate with those already in arms, its situation became entirely desperate. The governor made some attempts at resistance; but these were rendered ineffectual by the inhabitants, who loudly demanded an immediate surrender. The fleet returned in triumph to Europe.

Second Dutch expedition.

The Dutch company were inflamed with the most eager desire of repairing this loss and disgrace; but the deficiency of their resources obliged them to delay an expedition necessarily attended with enormous expense. They attacked, however, with the utmost vigour, the Spanish and Portuguese vessels in the European seas, as they returned from the East and West Indies; their success was prodigious; and immense wealth was the result of this species of warfare. In thirteen years they had taken five hundred and forty-five vessels, the proceeds of which amounted to £7,500,000. The equipment of the privateers employed had cost only about half that sum; so that they were enabled to divide never less than twenty, and sometimes even fifty per cent. on their capital. These funds soon placed them in a condition to undertake a new expedition into Brasil. About the middle of 1629, twenty-seven vessels were equipped and sent out under the command of Admiral Lonk. These collecting all the Dutch vessels they met, swelled gradually to forty-six, which, after a somewhat long navigation, arrived on the 3d of February 1630, off the coast of the fertile province of Fernambuco. Wardenberg, who commanded the troops, landed at the capital Olinda, which he immediately attacked. The Portuguese, however, no longer reposing in their former security, gave him a warm reception. Three forts defended the city, of each of which he rendered himself master, only by a sanguinary contest; and he was obliged to call in the aid of the naval force, in order to complete the reduction of the city. When this success, however, was completed, the whole province, struck with consternation, submitted to the victors. The Portuguese a second time learned, that this settlement, so much valued, was on the point of being wrested from them; the nation again strained every nerve to recover it; and they were again seconded, though more coldly than ever, by the court of Spain. However, a considerable armament was equipped, which might have effected its object, had not an infectious disease seized the troops before their departure. Two thousand perished; and the rest, dreading the same fate, fled from the scene of pestilence. The deserters were compelled to return, and the fleet was again prepared for sea; but these distressing events delayed its departure till the month of May in the following year. The Portuguese, collecting all their naval force, both in Europe and Africa, assembled a fleet of fifty-four vessels, which was considerably superior to any which the Dutch were able to oppose. The latter, not aware of the strength of the enemy, sailed from their harbours with only sixteen vessels. Accustomed, however, to despise the Portuguese, they hesitated not to engage even against such fearful odds; but they paid dear for their rashness. The admiral was blown up with his vessel; the second in command shared the same

Wars between the Dutch and Portuguese.

fate; yet the bravery of the Dutch still saved them from total defeat, and they made an admirable retreat to Olinda, carrying with them a Spanish vessel, of which they had made prize. The Portuguese admiral did not derive any decisive result from this success, or from his naval superiority. He contented himself with landing twelve hundred men to reinforce the Portuguese army under the command of Albuquerque: and having provided for the security of the capital, and of the province of Sergippe, he again set sail for Europe. Another expedition, dispatched next year, under the command of Don Frederic di Toledo, was still less productive of any serious injury to the enemy. The Dutch continued to make progress in Brasil, notwithstanding the bravery of the Portuguese generals, and the assistance the latter derived from the natives, whom they had now completely attached to their interests. The Dutch, in three successive campaigns, completed the conquest of the provinces of Tamaraca, Paraiba, and Rio Grande, and were thus masters of all that part of Brasil which lies north of the river Francisco. These successes inspired their government at home with the hope that, by a great effort, they might complete the conquest of Brasil. Prince Maurice of Nassau, equally distinguished for birth and for military talents, was put at the head of the armament. He arrived in October 1636, and joining his troops to those formerly in Brazil, immediately took the field. He entered the province of Sergippe, which had hitherto been untouched; he defeated the Portuguese commander Banjola, in several successive engagements; and at length made himself master of the capital and of the whole province. At the same time he reduced successively the strong holds which the Portuguese still retained in the districts north of Olinda; and he obtained a voluntary submission from the still more northerly province of Siara, which was then almost entirely in the possession of the natives. Brasil, however, was not conquered till the Dutch were masters of the capital. Prince Maurice, accordingly, marched to St Salvador, and laid siege to it; but the Portuguese, who considered this place as their last hope, had omitted nothing to put it in a respectable state of defence. After the prince therefore had carried by storm three forts which defended the city, on attempting to storm the place itself, he was repulsed with great loss; and a reinforcement, immediately after, arriving from Portugal, he found himself under the necessity of raising the siege.

In the following year (1639), extraordinary efforts were made by the two crowns to regain entire possession of this valuable settlement. Forty-six vessels, with five thousand troops on board, were dispatched under Fernand de Mascarenhas, a gallant and distinguished officer. Sickness, however, the usual scourge of Portuguese naval operations, attacked this armament, as it sailed along the coast of Africa; half the troops perished, and the rest arrived in a melancholy condition at St Salvador. Mascarenhas, however, by extraordinary exertions, collecting all the force which could be found in the country, formed an army of 12,000 men, which he embarked on board the fleet, and sailed against Olinda. Maurice had not been inactive in preparing for defence. Having received reinforcements from Holland, he expected Mascarenhas with forty-one vessels, well manned and equipped. A most furious engagement ensued, which lasted four days; and though, in the first, the Dutch admiral, Loos, was killed, yet victory remained with the prince. In the following days, his success was still more decisive; the Portuguese fleet was entirely dispersed; great part of it perished upon rocks; and of that mighty armament, only six vessels returned to Spain. The Portuguese troops, meanwhile, had taken advantage of this diversion, to enter Dutch Brasil; and being seconded by the Brasilians, under the command of a brave chief, Cameron, they gained considerable advantages, and committed great devastation. As soon, however, as Prince Maurice had disposed of the naval armament, he was easily able to put a stop to these inroads, while the Dutch navy rode triumphant in the bay of St Salvador. Yet, after all these successes, the prince was too weak to entertain any hopes of effecting the entire conquest of Portuguese Brasil; and both parties being tired of the calamities occasioned by so long a war, a negociation was entered into for a suspension of hostilities; and while it was in progress, the event was accelerated by important changes which had taken place in the mother country.

Time had in no degree reconciled the Portuguese to the Spanish yoke; a succession of new injuries and sufferings kept their hatred continually alive. Among the grounds of their animosity, none lay deeper than the loss of Brazil; a calamity to which they would never have been exposed, had they not, by their union with Spain, been involved in the war which that nation carried on against Holland; and the apathy which the Spanish court was supposed to have discovered, both in regard to its preservation and recovery, heightened this resentment into fury. The whole nation, therefore, was ripe for a revolution, by which they might shake off the Spanish yoke; the Duke of Braganza, whom they regarded as the rightful heir, resided in the kingdom; and the ministers of Philip IV., either from weakness, or from a doubtful policy of fomenting rebellion, in order to obtain pretences for oppression and confiscation, took no effectual measures to guard against the threatening danger. It would be departing from our subject to enter into any detail of the steps by which the independence of Portugal was established, and the house of Braganza placed on the throne. The nation unanimously took up arms; but they were thus involved in a long and severe struggle with the military power of Spain, which was still ranked among the most formidable in Europe. In these circumstances, the preservation of national independence becoming the most urgent object, it was necessary to postpone any attempts at the recovery of Brazil. The Dutch, from enemies, became the most hopeful allies in this new contest; and the present was no time to irritate or attack them in any quarter. A treaty of peace and alliance was therefore concluded between the two nations, by which it was stipulated, that the limits of Dutch and Portuguese Brazil should remain as they then stood. This treaty was signed on the 23d June 1641. The Dutch, now conceiving their Brasilian possessions to be in the most profound security, thought only of reducing the enormous expence of the establishment. With this view, they recalled Prince Maurice, who, with all his talents for war and government, was considered as not sufficiently economical. In his room, they sent out a board of directors, in whom they conceived full reliance could be placed. A merchant of Amsterdam, a jeweller of Haarlem, and a carpenter of Middleburg, were the persons nominated to succeed Prince Maurice. On inquiring into the state of affairs, it soon appeared to these careful men, that it was needless to keep up fortifications which, according to all appearance, would not be needed; that arms and ammunition might be advantageously disposed of to the Portuguese, who were willing to purchase them at a high price; and that, by giving permission to a large proportion of the troops to return to Europe, the expence of their pay and maintenance might be saved. The Portuguese governor soon perceived and reported to his court the defenceless state to which the kingdom was reduced by this prudent system. The king was dissatisfied with the manner in which the Dutch had executed many articles of the treaty; and as his war with Spain had been distinguished by brilliant success, he no longer felt the same entire dependence on the Dutch as before. He cautioned his officers, however, to avoid any open rupture with that nation, but at the same time to be on the watch for favourable opportunities of wresting from them the provinces which they occupied in Brasil.

This object was on the point of being very suddenly accomplished. Encouraged by the state of torpor in which the Dutch government was sunk, an individual conceived the idea of overturning it. In Maurice-town, which had become the capital of Fernambuco, there still resided a number of Portuguese, who were treated with great lenity. One of these, named Cavalcante, who exercised even the office of judge among his countrymen, formed a daring conspiracy for the massacre of all the Dutch who were at the head of the government. The occasion fixed for the perpetration of this enormity, was a festival, by which he was to celebrate the marriage of his daughter. The plot was discovered; but Cavalcante, and the principal conspirators, found means to escape, and having collected a number of their countrymen, began to lay waste the Dutch territories. A *petite guerre* was thus begun, and carried on with great animosity on both sides; and though publicly disavowed, was secretly supported and encouraged by the Portuguese governor. This was pretty evident, when the insurgents were so well provided with artillery and ammunition, as to be able to lay siege to the strong places in Dutch Brasil. Yet so much was the government of Holland lulled by the assurances of the Portuguese governor, that they allowed a fleet from Portugal to touch and water at the port of Olinda. The same fleet then proceeded to the Rio Formoso, and there disembarked 1500 men, who immediately joined the army of the insurgents, and enabled them to gain considerable advantages. The Dutch, now roused, began to make warm and serious remonstrances to the court of Portugal. The king omitted nothing by which, without sacrificing his object, he could pacify them, and lull their vigilance. After representing the difficulties which they would experience in reducing the insurgents, he offered to take that task upon himself: he granted them advantageous treaties of commerce, and lavished upon them promises of every kind. The Dutch had then engaged with England in a most sanguinary and desperate contest, which was to determine which of the two powers should henceforth have the dominion of the sea. They were therefore easily deceived, and induced to shut their eyes to remoter interests. In consequence of this neglect, the Portuguese interest silently strengthened itself in Brasil; their force was augmented, and new places of strength were added to those which they had already taken from the enemy. In 1654, therefore, when the republic had concluded peace with England, and when it was evident that the professions of the court of Lisbon were wholly insincere, they determined to apply themselves vigorously to the preservation of this important possession. Preparations were accordingly made to equip a fleet of thirty sail, with a corresponding number of land troops on board. But while they were still involved in the bustle of preparation for this armament, news arrived, that its object was no more; that the Portuguese were now entire masters of Brasil.

Final expulsion of the Dutch.

In consequence of the neglect of the government at home, affairs at Olinda had been becoming continually worse. The troops were not only diminished in number; but those who remained not being regularly paid or supplied with provisions, and not being allowed to return home at the expiration of their period of service, began to shew strong symptoms of discontent and irritation. The warlike stores, disposed of by the economy of the board which succeeded Prince Maurice, had never been replaced; and the naval force of the colony had been reduced to a single vessel. The Portuguese, judging this a favourable moment, drew out their whole force, both naval and military, and having formed a large army, with a fleet of sixty sail, which accompanied its progress, and supplied it with provisions, they proceeded directly against the city of Olinda. They were expected there, not as enemies, but as deliverers. Schouppe, the governor, surrendered without striking a blow, on receiving permission for his garrison to return to Europe. The capitulation was signed on the 20th January, 1654.

The Dutch were struck with equal concern and indignation at seeing themselves deprived of so valuable a possession, by an ally who had lavished on them so many professions of amity. Hostilities were immediately commenced against Portugal, both in Europe and in the East and West Indies; but no attempt was made for the recovery of Brasil. The war was prosecuted for six years with great animosity, but without any success that could compensate for the burdens which it imposed. At length, on the 1st March, 1661, the province of Holland addressed a memorial to the others, representing the absolute necessity of thinking on peace. The rest, however, though they agreed to open a negotiation, expressed their determination to remain satisfied with nothing less than the entire restoration of their former possessions in Brasil. They allowed, however, the ambassadors to meet, on its being conceded by the Portuguese, that this should take place at the Hague. The Dutch plenipotentiaries immediately opened their demand of Brasil, declaring, that unless they were satisfied, no treaty could be brought to a conclusion. The Portuguese, however, justly represented, that, in the present state of affairs, such restitution was entirely out of the question; but that they were willing to give a liberal pecuniary compensation. All the states acknowledged the necessity of contenting themselves with this offer, except the maritime province of Zealand, which, being deeply embarked in the West India Company, protested against a treaty founded on any other basis, than the entire restoration of the provinces which they had lost. Its remonstrances, however, were overruled, and on the tenth of August, a treaty was signed, by which the whole of Brasil was finally ceded to Portugal. That power agreed to pay in return eight millions of florins, by sixteen instalments, in salt and West India commodities. Dutch vessels were likewise allowed to sail from Portugal to Brasil, and from Brasil to Portugal, importing and exporting all commodities whatever, with the single exception of Brasil wood. Large privileges were likewise granted to the Dutch trade with other parts of the Portuguese dominions. But the concession, with regard to Brasil, was found, in practice, to be of very small value. The ports of that country are little open to those who profess any other religion than the Catholic. The arbitrary conduct, besides, of the governors, and other officers, exposed them to continual outrages, for which redress was not easily obtained. The Dutch, therefore, have long ceased to avail themselves of this permission.

Treaty between Holland and Portugal.

Not to interrupt the thread of this narrative, we have omitted to notice some transactions which had meantime occurred in the interior of Brasil. The race of malefactors with which its coast was at first peopled, could ill brook the restraints of law and government. A number found means to emancipate themselves by flight; and the district of St Paul, in the interior and southern part of Brasil, presented them with an inviting retreat. Here they formed intermarriages with Brasilian females, and the mixed class thus produced, received the name of Mameluss, in allusion to the servile race which has held the dominion of Egypt. The country in which they settled was of the most luxuriant fertility, and being surrounded by forests and vast mountains, presented a secure asylum. Instead, however, of applying to cultivation and peaceful pursuits, they abandoned themselves entirely to rapine and disorder. They plundered alike all their neighbours, Portuguese, Spaniards, and natives; the latter they carried off as slaves. In order to accomplish this more effectually, they practised a most atrocious stratagem. The Jesuits, by their benevolent exertions, had gained the full confidence of the Indians bordering on the La Plata, and had converted many of them to the Christian faith. The Paulists assumed the dress and character of Jesuits, and having, after their example, persuaded the natives to embrace Christianity, they then, on plausible pretences, seduced them into their own settlements, where the unhappy victims were immediately converted into slaves. By these criminal methods, they were enabled to cultivate their fertile lands, and to acquire some wealth. Hence they were gradually softened into a degree of civilization, and were induced, by the combined influence of fear and persuasion, to acknowledge the supremacy of the Portuguese government, and to pay a certain annual tribut*.

Negro i
surrecti

About the conclusion of the Dutch war, Brasil was afflicted by another insurrection, arising from a different source. About the year 1570, negroes had begun to be imported into Brasil; and as they were found much better fitted than the natives for the labours of cultivation, the nefarious trade was soon carried to a great extent. In the course of the wars which the two nations waged against each other, it had frequently been found necessary to put arms into the hands of the negroes, and they had become in some degree warlike and inured to discipline. In the confusion occasioned by the capture of Olinda, about forty made their escape, and established themselves in a favourable situation on the frontier, near Porto do Calvo. This became a rendezvous for all of their nation who could emancipate themselves from bondage; and their numbers soon became considerable. They supplied the want of wives, like the first founders of Rome, by violence; they entirely swept the neighbouring plantations, carrying off every female of colour. Equal laws, joined to the possession of a fertile territory, and copious opportunities of plunder, caused their population to multiply with extraordinary rapidity; they soon erected themselves into a nation, assuming the name of the Palmarese; they elected a king, whose dignity, however, was to last only for life. They procured supplies of arms and ammunition from the planters; and, continually apprehensive of attack, they formed stockades of large trees round the capital and others of their towns. They remained unmolested, however, for forty years; and had grown in that time to such a height of power, as to threaten the very existence of the colony. The population of their principal town amounted to not less than 20,000. At length, in 1606, the Portuguese governor, seriously alarmed, collected, at Olinda, a force of 6000 men, which he placed under the command of Don John de Lancastro, with orders to proceed against the Palmarese. That people, unable to meet such a formidable force in the field, shut themselves up, with all their effects, in the capital, to which the Portuguese immediately advanced and laid siege. They were struck with dismay, however, at the formidable aspect of the works, and the resolute countenance of their defenders; and this terror was increased by repeated and destructive sallies made by the besieged. Unprepared for such a resistance, they had made no adequate provision of artillery and supplies; the spirit of the troops sunk; and the Palmarese entertained sanguine hopes of a speedy deliverance from this formidable invasion. The governor, however, was not so to be deterred; he prepared a detachment with every thing of which the besiegers stood in need. The Palmarese, meanwhile, had exhausted their ammunition, and they began to feel all the horrors of famine; yet they were still supported by the hope that the enemy, equally destitute, would soon be compelled to desist. But when the reinforcement appeared, their courage entirely sunk; they saw the inevitable fate which impended; and their arms dropt from their hands. A general storm soon took place, and the resistance of the dispirited defenders being feeble, the place was soon carried. The prince, preferring death to captivity, threw himself down the rocky side of the fort, and was killed on the spot. Almost all the rest were taken prisoners, and sold as slaves.

This event was immediately followed by a brilliant æra in the history of Brasil. Her wealth had hitherto been derived exclusively from the productions of the soil, which, however valuable, could not vie in the estimation of Europeans, with the more splendid objects which the Spanish part of the new world presented. Yet, even in the sixteenth century, the Paulists had discovered gold in the heart of their mountains; and a report on this subject was made to Philip II.; but that monarch, governed by the base policy of depressing, as much as possible, his new subjects, either evaded the applications, or seconded them so coldly, that no result followed. After the separation of the kingdoms, the long struggle which Portugal had to maintain, for her own independence and the recovery of Brasil, engrossed almost entirely her attention; and she had little leisure to prosecute discoveries and improvements. In 1699, however, the neglect of government was compensated by the activity of some enterprising individuals, who discovered and began to work several gold mines in the back settlements. The metal was found abundant, and of easy extraction; and it soon appeared, that a vast source of treasure had been opened to the nation. The governments of Europe were not accustomed to look with indifference upon such operations; and the court of Lisbon took immediate cognizance of those which were going on in its colony. It ordained, that, on the discovery of a mine, immediate notice should be given to government; and that a fifth part of the produce should always be paid into the treasury. Other mines were soon discovered; and the produce was so copious, that the king's fifth amounted to 480,000 *l.* and consequently the whole produce to more than two millions. At this rate, it continued from 1728 to 1734. It then began gradually to diminish, till the whole produce sunk to 1,030,000 *l.* and, consequently, the royal fifth to 257,500 *l.* Besides this original tax, however, the government imposed a duty of 2 per cent. on its conveyance to Europe, which yielded nearly 16,000 *l.* to which might be added the seignorage on the coinage of gold, amounting to nearly 80,000 *l.* which raised the whole revenue derived from this source to 353,500 *l.*

This discovery was, thirty years after, followed by another, still more unexpected. The workmen employed in the mines met often with little shining stones, which they threw away, as useless, with the sand and gravel. One of the overseers began to suspect that these might be of some value, and transmitted a specimen to the governor. They were immediately sent to Lisbon; and that court directed d'Acunha, its ambassador in Holland, to make them be examined by the jewellers of that country, who were reputed the most skilful of any. After repeated examinations, they were pronounced to be genuine and valuable *diamonds*. As soon as this important intelligence reached Brazil, the stones were immediately collected and sent over to Europe in such quantities, as greatly to lower their value. The court of Lisbon, which was exceedingly dissatisfied with this effect, adopted, in order to prevent it, a system of the most rigorous monopoly. They vested the trade in an exclusive company, and even this body they restricted from employing more than six hundred slaves in the employment. This restriction was afterwards taken off, and its place supplied by a moderate tax on every slave so employed. At length the government, envying the profits of the company, took the trade into its own hand. All restrictions upon the collection of the diamonds were then removed; but it was enacted, that every person who found one should deliver it to one of the crown agents at a fixed price; out of which, too, was deducted, as in the case of gold, the tax of a fifth. A series of the most rigorous precautions were employed, to prevent unlawful trade and embezzlement, both in the colonists employed in collecting the diamonds, and in the officers of the crown.

The whole sum produced to government by the mines of Brasil is, on an average, estimated at £148,500. The diamonds are purchased by British and Dutch lapidaries, who cut and bring them into a state proper for sale.

Disputes between the Spaniards and Portuguese.

After having acquired the entire possession of Brasil, the Portuguese began to form schemes for extending its boundaries. Their settlements bordering on those of the Spaniards, and both these nations being ambitious and enterprising, it was to be expected that limitary disputes should arise between them. The Rio de la Plata early appeared to the Portuguese to form a natural and convenient boundary to their territory. Soon after the era of the first discovery of these countries, they had sailed up that river, and occupied its northern bank. They did not, however, form any permanent settlement there; and as their attention was withdrawn by subsequent events, the Spaniards considered that side of the river as annexed to their territory of Buenos Ayres. In 1680, however, the court of Lisbon, reviving their ancient claim, caused an establishment to be formed at Santo Sacramento, near the mouth of the La Plata. The Spaniards appealed to the authority of the pope, who, happening to be in the interest of the Portuguese, admitted, indeed, that the original line of demarcation had assigned that district to Spain; but insisted, that subsequent proceedings had tranferred the right to Portugal. Meantime the Spanish governor of Buenos Ayres adopted a more vigorous method of determining the controversy. He equipped a formidable armament, and, finding no force sufficient to resist him, soon levelled with the ground the walls of the rising colony. The Portuguese court remonstrated loudly against this proceeding; and being supported by the authority of the pope, obtained an agreement, by which Santo Sacramento was restored to them, and the two nations were to enjoy in common the contested territory. This joint occupation was not likely to assuage the animosities of two hostile nations; and the war of the succession soon ensuing, allowed their hostile disposition to operate. The Spaniards again prevailed; and, in 1705, the Portuguese were expelled anew from Santo Sacramento. By the treaty of Utrecht, however, the English procured for them, not only its restoration, but also the exclusive possession of the territory on which it stood. Santo Sacramento then rose into a place of considerable importance. Its situation was favourable for a contraband trade with Buenos Ayres; and this trade was soon carried to an extent which gave equal prosperity to the colony and umbrage to the Spanish government. The latter could find no better method of guarding against the injurious effects of an establishment so reluctantly sanctioned, than by themselves forming settlements on the opposite side of the river, and carrying these as close as possible to the Portuguese territory. This proximity soon gave rise to quarrels; and perpetual hostilities, unauthorised by the mother country, were carried on by the colonists of the respective nations. In order to put a stop to these, a convention was at length concluded between the two nations, by which Portugal resigned the colony of Santo Sacramento, on receiving in return seven of the missionary settlements formed by the Jesuits on the eastern bank of the Uruguay. Spain, however, had no right to make this concession; because the nations who composed these missions had submitted voluntarily to the direction of the Jesuits, but had not rendered themselves subjects of the king of Spain. They refused, therefore, to concur in the deed which transferred them to Portugal, and took up arms in their own defence. But they were unable to contend with the regular troops sent from Brazil, and were compelled either to submit or emigrate. The Portuguese court then insisted, that, as they had obtained possession of these settlements, not in consequence of the treaty, but by force of arms, they were absolved from the conditions on which they had been ceded. Thus all things reverted to their former confusion; and the same perpetual and harassing warfare was again recommenced. It continued to rage till the year 1777, when the Portuguese court found itself under the necessity of ceding the disputed territory, receiving, however, at the same time, that of St Pedro, which had been wrested from them.

Storming of Rio Janeiro in 1711.

These contests were carried on chiefly between the inhabitants of the American provinces themselves. Brazil, from its distance, and a received opinion of its strength, was not generally the object of those naval wars which, during the eighteenth century, were waged with such activity between the European nations. In 1711, however, the war of the succession, which had produced such formidable convulsions throughout all Europe, was felt in this remote region. Portugal having espoused the cause of England and Austria, became thus the enemy of France; and the celebrated Admiral Duguay Trouin formed the design of obtaining possession of Rio Janeiro. With the most daring valour, he led his fleet through all the range of batteries which defended it, and carried the place by storm. In the peace, however, which was soon after concluded, Rio Janeiro was restored to Portugal.

All these wars, however, were of petty importance, and did not materially affect the interest and prosperity of Brasil. She was much more deeply affected by the commercial arrangements adopted by the mother country, for the regulation of her colonial intercourse. At the time of the first discovery of the new world, and for the greater part of the period which has since elapsed, the European nations were attached to a system of the most rigid commercial restriction. An ignorance of the true principles on which the prosperity of trade depends, made it be imagined, that the more minutely and carefully all its movements were regulated by government, the more beneficial was it likely to prove. The suspicious character, besides, of the states of the peninsula, and the concealment and mystery in which they delighted to wrap themselves, made them solicitous that colonial intercourse should be confined within as narrow limits as possible. These motives led to the introduction of the *flota* system, by which the intercourse between the mother country and the colonies was permitted to be kept up only from certain ports, and at certain seasons of the year. This system was adopted by Portugal as well as Spain, but on a considerably more liberal footing. Annual fleets were allowed to sail, both from Lisbon and Oporto; and as these cities, from their advantageous situation, engrossed almost all the commerce of Portugal, and were almost exclusively qualified for carrying on distant commercial enterprizes, the restriction probably was not so severely felt. The ports in the colony which were allowed to hold intercourse with the mother country, were, in like manner, limited to four, Olinda, St Salvador, Paraiba, and Rio Janeiro. To these the same remark may be applied, though not, perhaps, to the same extent. The regulation which prevented the fleets from sailing oftener than once in the year, was probably much more injurious. However, in consequence of the inferior regard which was paid to Brasil, she was happily exempted from that complicated system of restraint and monopoly, under which the Spanish settlements groaned. To this circumstance, perhaps, she was mainly indebted for that measure of prosperity to which she silently attained. As soon, however, as, by the discovery of gold and diamonds, Brasil began to be regarded as an immense source of wealth to the crown, the fortunate indifference with which it had before been regarded, entirely ceased. Rigid regulations, as we have seen, were enacted, in order to secure to the crown the ample revenues arising from these valuable productions; and in order to render these regulations effectual, it became necessary to establish a general system of restraint, which cramped the growing prosperity of the colony About the middle of the last century, under the administration of the Marquis of Pombal, Portugal exhibited the singular and melancholy spectacle, of a nation beginning to adopt an exploded system, at the very moment when every other people was abandoning it, and studying to remedy the evils which it had occasioned. This system was that of exclusive companies, which Pombal carried to such an extent, as to subject to them even port wine, the staple commodity of the kingdom. Extending it to Brasil, he subjected to an exclusive company the trade of the northern provinces of Maragnan, Para, and Fernambuco. The regulations of this company were, in some respects, of a nature peculiarly preposterous. Ignorant of the limits which bound the authority of sovereigns in commercial affairs, the court of Lisbon ordained, that the shares in this company's stock should bear a certain price; and, in order to enforce this regulation, it was decreed, that they should be a legal tender of payment. To such of our readers as are at all conversant with political economy, it is needless to point out the impossibility, that such an ordinance should ever be executed. The preposterous attempt, however, must no doubt have lowered the credit of the company, and embarrassed its transactions. This cause, and the radical defects of such an establishment, soon induced a material diminution in the commerce of these provinces. The number of vessels employed, sunk from thirteen or fourteen, to four or five. The ministry, therefore, who succeeded Pombal, being of themselves unfavourably disposed to measures pursued by their predecessor, hesitated not to reject one so unpopular and injurious. The old arrangement was then restored, though, there is reason to believe, with some abatement of the rigour of the flota system. Upon the whole, the sytem of commerce between Portugal and Brasil has been on a much more liberal footing than that between Spain and her colonies, and the productions of other European countries more easily admitted. This was owing, in a good measure, to the intimate connection of the mother country with England. Portugal, from its position with regard to Spain, and its inferior magnitude, was in constant danger of being swallowed up by a more powerful neighbour; and from the establishment of the Bourbon dynasty on the Spanish throne, no aid was to be hoped from France in maintaining her independence. She looked, therefore, to England as her natural protector; and, in order to cement the alliance with that power, was willing to grant some commercial privileges which her colonial possessions rendered peculiarly valuable. On the 20th December 1703, a treaty was concluded between the two powers, by which the manufactures of England were allowed to be imported into Portugal on terms more advantageous than those of any other European country. England made a similar stipulation in favour of the wines of Portugal; so that it seemed to remain doubtful, even according to the ideas then prevalent, on which side the balance of advantage lay. The article in the treaty, however, which excited the exultation of England, and the envy of Europe, was rather understood than expressed. It was fixed, that an English packet boat should sail weekly from Lisbon to London. As this vessel belonged to government, it was exempted from search; and an opportunity was thereby afforded, of eluding those strict penalties, which were imposed on the exportation of gold. It was soon complained, that all the gold of Brasil took the road of the Thames. Sounder views, which have since opened, have shewn, that this envied advantage was wholly chimerical; that all the gold necessary for our circulation, would, of itself, have found its way into this country; and that, even if Portugal could have rendered her prohibition effective, the injury would have been on her side, not on ours. The free introduction of British manufactures, however, was a mutual advantage to both nations; and it rendered the supply of many of the comforts and conveniences of life more copious in Brazil, than in most of the Spanish colonies. They were often supplied, on still easier terms, by means of contraband trade. British vessels, on their way to the East Indies, or to the South Sea, have been accustomed to touch at the friendly ports of Brasil; and there they often found means to introduce European commodities at a cheaper rate than they could be sent from Portugal. Previous to the late emigration, however, the court had adopted very strict measures for preventing this irregularity. No trade of any kind was allowed between the natives and British; though, as the persons who were employed to enforce this regulation, found often their interest in violating it, the intercourse could not be entirely stopt.

Removal of the Portuguese court to Brasil.

Such was the course of events in Brasil, while it continued a subordinate part of the Portuguese empire. Recent events, by transferring to it the residence of the court, have raised it to a higher importance. The connection of Portugal with England, which had long been a source of security, ceased to afford her protection, when the power of France became predominant over the continent. On this very account, the present ruler of France, as soon as he had obtained a respite from warfare in the east of Europe, selected Portugal as his first victim. Measures had been repeatedly taken to expel the Prince Regent from his European territories, though they were suspended, first by the peace of 1801, and afterwards by the war with the northern powers. But when Prussia and Russia had successively sunk under the French arms, Buonaparte no longer hesitated to put his long-meditated design into immediate execution. In the autumn of 1807, he began his operations, by issuing to the Prince Regent a mandate, that the English and their commerce should be entirely excluded. The prince, though extremely unwilling to renounce so long and faithful an alliance, yet, overawed by the French power, determined to yield. The British merchants were accordingly warned to leave the kingdom, with all their effects; with which they lost no time in complying. The prince, however, was soon given to understand, that he must not only exclude the English from the kingdom, but must seize the persons and property of all of that nation who could be found within it. Sir Sidney Smith, on the contrary, who commanded an English squadron at the mouth of the Tagus, declared, that his government would not found any hostile measures upon the exclusion of British commerce, but that, if the regent proceeded a step farther, he would immediately declare Lisbon under a state of blockade. The prince, however, under the alarm of impending danger, had the weakness to consent to the conditions required by Buonaparte, and to issue orders for confiscating all that remained of British merchandize. He soon found, however, that this humiliation would avail him nothing. Junot, with

40,000 men, was marching with incredible rapidity upon Lisbon, and had arrived at Abrantes before the Portuguese government were aware of his having entered the country. Three days after, on the 29th November, the vanguard of the French army appeared on the heights above Lisbon. By this time, however, the determination of the prince had been formed. Seeing fully that no concession could save him, he determined upon emigration to Brasil. Every thing of value, which could be transported, was hastily put on board the fleet, which set sail on the 29th; so that the French troops arrived just in time to witness its departure. They entered Lisbon on the following day.

The prince, after a prosperous voyage, arrived, on the 25th January 1808, at Bahia in Brasil. He spent a month there, visited the most remarkable places in its neighbourhood, and was received with enthusiastic expressions of joy. He then sailed to Rio Janeiro, where he established his residence.

Treaty of commerce with Britain.

Since that time, no political events of importance have occurred, unless in the European dominions of this prince, which, of course, fall to be related under another head. Soon after his arrival, however, at Rio Janeiro, a treaty of commerce was concluded, which contains many important provisions. The ports of Brasil, formerly shut against British commodities, were now laid open, upon the payment of a duty of 15 per cent. Gold and silver, however, according to the old commercial prejudices, were excepted, and continued still to be prohibited. The island of St Catherine's was declared a free port. At the same time, unlimited permission was granted to build ships for the use of the British navy, and to employ the noble forests of Brasil in their construction.

Different provinces of Brasil.

In consequence of these arrangements, Brasil has become extremely interesting to this country, in a naval and commercial point of view. It may be proper, therefore, to give, at some length, a view of its extent, productions, and of the different provinces which stretch along its coast.

Para.

The most northern government is that of Para, situated immediately upon the river of the Amazons. It comprehends even that part of Guiana which belongs to Portugal; and the part of this government which lies south of the great river, and which properly belongs to Brasil, extends to the frontiers of the province of Maragnan. It is of considerable fertility, though little cultivated. The foundation of the town of Para, or Belem, was laid in 1615. The trade was for some time confined to vanilla, sarsaparilla, and cotton, the spontaneous produce of the ground, which were collected by the Indians, and brought to the capital. But when the labour of negroes was introduced, some cultivation took place, and the different West India products were raised, though not in very great abundance. The progress of this settlement was, in the middle of the last century, severely checked by the exclusive company, established by the Marquis of Pombal; though it may probably have availed itself of the removal of this restraint, which took place about twenty years after. The approach to the harbour is difficult, on account of the currents; but, within, the anchorage is good. The population of this province is stated at 4128 whites, 9910 negroes or mulattoes, and 34,800 Indians.

Mar

The next province is that of Maragnan, which extends along the coast, from the frontiers of Para, to a range of mountains, which separate it from Fernambuco. The Portuguese first established themselves in it about the year 1600. In the year 1611, some French gentlemen, Devaux and La Ravardiere, established themselves in the isle of Maragnan, and built on it a fort, which they called St Louis. They were driven from it, however, a few years after by the Portuguese, under the command of Albuquerque. About the year 1640, the Dutch extended their conquests to this province, but lost it again, along with the rest of Brasil. The first production drawn from this country was ambergris, which was afforded in considerable quantities; but this article being exhausted, the inhabitants betook themselves to the cultivation of the common tropical productions. It was soon found, that the cotton of Maragnan surpassed in value every other species produced in the new world; and a copious source of wealth was thus opened. Different species of dyes, particularly that called *Rocou*, are copiously produced; and the plains behind are filled with horned cattle, which obtain a ready sale in the more populous provinces adjoining. The first and still the best inhabited part is the isle of Maragnan, or St Louis, which is separated from the continent only by a river. It is seven leagues in length, four in breadth, and of exuberant fertility. All the commerce of the province is carried on by the port of St Louis, no other part of the coast being accessible, on account of the shallows and hills of sand, with which it is bordered. This harbour, too, possesses merit only by comparison; for it is beset with rocks and islets, which render the passage extremely dangerous. Only two entrances have been discovered, one on each side of the island of St Anne. The population of this province is calculated at 9000 whites, 18,000 negroes and mulattoes, and 39,000 Indians.

Ciara.

South-east of Maragnan is a district called Ciara, or Scara, where the Portuguese have formed so few settlements, that some doubt is entertained whether it ought to be reckoned among the number of their provinces. They have constructed a fort, however, in a situation where there is a harbour, though capable of receiving only small vessels. Two or three ships touch here annually, to take in the few productions of this district.

Fernam
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We come now to the extensive government of Fernambuco, which extends along the coast, till it is bounded by the great river of San Francisco. It is formed by the union of four provinces, those of Fernambuco Proper, of Paraiba, of Rio Grande, and Tamaraca. These were the districts held by the Dutch, so long as that nation kept its ground in Brasil; and they are accordingly the most carefully cultivated. Sugar, the most valuable production of these climates, is raised here in greater perfection, than in any other part of South America. Brazil wood, besides, which this country exclusively produces, is found in the province of Fernambuco alone. The government, however, has been careful to circumscribe the benefit derived from it, by making it the object of a monopoly. The value of this wood imported into Europe amounts, however, to between 30,000*l.* and 40,000*l.*

Olinda, the capital of the province, and formerly of all the Dutch dominions in Brasil, is situated on a hill, at about a mile's distance from the sea. It contains only two thousand Portuguese inhabitants, but a much greater number of Indians and people of colour. Its trade is carried by the Recise, or port, situated at the mouth of the river on which the city lies. The harbour is far from good, the entrance for large vessels being extremely narrow. Along the whole of this coast extends an almost continued wall of rocks, about sixty feet high, allowing vessels to approach only by a few narrow openings at different places.

Tamaraca is situated only five miles north of Olinda, upon an island, which is separated from the continent by a narrow channel. It contains a pretty good harbour. The district attached to it is the property of the Marquis of Monsanto. Paraiba, which, under the Dutch government, became a place of considerable importance, has also a tolerable harbour, at the mouth of a river of the same name. Rio Grande is situated on a rock in the river of that name, and is, by its situation, nearly impregnable. The district of Rio Grande produces wheat, hemp, cows, and horses, in such abundance, that it is reckoned the richest part of Brasil; but, owing to the numerous flats in the river, it is not able to carry on an extensive navigation. The isle of Fernando di Noronha, though at the distance of sixty leagues from the coast, is also attached to the government of Fernambuco. The Portuguese merely keep a garrison there. The whole of Fernambuco is supposed to contain a population of 19,600 whites, 39,000 negroes and mulattoes, and 33,700 Indians.

On passing the great river San Francisco, we find ourselves in the government of Bahia, long the centre of Portuguese dominion in this part of the world. Like that of Fernambuco, it is composed of four provinces, Sergippé, Bahia Proper, Dos Ilheos, and Porto Seguro. Bahia Proper is the most fertile and populous of all the provinces. The plantations are extended to a considerable distance inland, and are of great extent, employing often two or three hundred slaves. Sugar, cotton, and tobacco, are the staple productions. The capital, Bahia, or St Salvador, carries on a very extensive trade, both with the mother country, and with the other provinces. The bay on which it lies forms one of the noblest harbours in the world. It is twelve leagues in length and three in breadth, is entered from the south, and affords anchorage, where the united shipping of the globe might be fully accommodated. The city is situated on the right side of the bay, on a steep hill, with a single street, parallel to the beach. The most magnificent edifice is the grand church of the Ex Jesuits, which is built entirely of European marble, while every species of ornament is lavished on its interior. The college and monastery attached to it, being no longer occupied, have been converted into an hospital. The remaining churches are loaded, though in a less degree, with the same gaudy and superstitious ornaments; but the general appearance of the town is far from corresponding to these structures. The streets are narrow, ill paved, and excessively dirty. The houses, even of the opulent inhabitants, have a dull and dirty appearance from the street; while those of the lowest rank are composed of tiles, open to the roof, and instead of windows they have wooden lattices, which are not even painted. The city is populous, containing upwards of an hundred thousand inhabitants, of whom thirty thousand are whites, thirty thousand mulattoes, and the rest negroes.

The only present defence of St Salvador consists in a fort called Do Mar, situated on a small rocky bank, about three quarters of a mile from the shore. It is chiefly indebted for its strength to the Dutch, who fortified it during their attempt to obtain possession of the place, in 1624. It consists of a circular tower, with a lower battery: the diameter of the whole is about 270 feet. The shipping, by lying between this fort and the city, are placed under its protection. Five hundred men compose its garrison; but through the negligence of the government, this number is never complete. The passes leading inland, to the north and south, are also defended by two forts, Barbalho and St Pedro, neither of which, however, possess any considerable strength. The troops of the city, including militia, amount to about 5000; one regiment of which is composed of mulattoes and free negroes. Ships of war are constantly building; but as the dockyard admits only one at a time, the augmentation of their navy cannot be very rapid.

Bahia carries on a very extensive commerce, both with the mother country, with the other provinces on the coast, and with the interior. From the different parts of its own government alone, eight hundred launches and sumacks daily enter the harbour, bringing the various productions of the neighbouring territories. It is the centre of the trade of all these districts, and the medium through which they transmit and receive commodities to and from the mother country. About fifty vessels are employed in the trade between Lisbon and Oporto, bringing from thence provisions, and every kind of European commodity, and carrying in return cotton, sugars, coffee, tobacco, dying woods, and medicinal roots. The trade to the more distant provinces of the colony is also considerable, particularly that to the southern province of Rio Grande. The European commodities carried thither, are disposed of, not only to the Portuguese inhabitants, but also to the Spaniards of Maldonado and Monte Video; and the vessels in return bring dried beef and hides, the produce of the vast meadows which extend in the neighbourhood of those settlements.

Besides the capital, this province contains Cochoria, finely situated on the banks of a river, fifteen leagues in the interior, and the mart for the northern gold mines of Brasil. It contains also Tagoaripe, Amoro Jacobina, Do Sitis, and San Francisco, at each of which a considerable trade is carried on.

Between Fernambuco and Bahia Proper is a small province, called Sergippé. It is thinly inhabited, and little known to Europeans. The capital of the same name, is situated on the Rio Real, and sends maize and cotton to Bahia.

On the south of Bahia, is another small province called Dos Ilheos, from a number of islands which cover the entrance of the bay on which it is situated. It is much less cultivated than Bahia, and supplies the capital with little except timber. The banks of the Rio Grande, which separates it from Porto Seguro, are bordered with immense forests, producing the best timber of Brasil, whence the royal navy derives its chief supplies. An expedition sent up this river pursued its course for fifteen days, without meeting with bar or obstruction of any kind.

To the south of Dos Ilheos lies the province of Porto Seguro. This province is equal in fertility and beauty to Bahia, but the cultivation is much inferior, being chiefly confined to the banks of the river on which the capital is situated. The harbour of Porto Seguro is formed by an opening in that ledge of rocks which runs along all this part of the Brasilian coast. The depth of water at the entrance is twenty feet, but in the interior twelve forms the average. The inhabitants here give themselves up to more than the usual share of Portuguese indolence and languor. Fish, though abundant on the coast, is scarcely to be had fresh, and the inhabitants depend chiefly upon the importation of that article salted. Although the savannahs in the country behind are overrun with cattle, beef is excessively scarce. Near the *abrolhos*, or rocks, indeed, islands which lie off the coast, a fish resembling salmon is caught for the Bahia market; and this furnishes employment to about 3000 people. Southward from Porto Seguro, the coast is extremely neglected, till we arrive at the river Carevellos, where there is a good harbour, though the entrance is rather dangerous. The banks of this river form the store, whence manioc, an essential article in the subsistence of Brasil, is chiefly supplied.

Rio Janeiro.

With Porto Seguro terminates the government of Bahia; and we come then to that, which has now taken the lead among all the rest,—the government of Rio Janeiro. It is not less favoured by nature than the other districts; but so long as St Salvador continued to be the capital, it experienced a comparative neglect. The views of the government, however, were greatly changed, when, about the beginning of last century, the gold and diamond mines were discovered in the districts immediately behind it. Rio Janeiro then rose at once to the first importance; and on the discovery of its admirable harbour, the seat of government was transferred thither. This harbour is perhaps the finest in the whole world. Like that of Porto Seguro, it is formed by a narrow opening in the ledge of rocks which walls all this part of the coast. When the mariner has entered, however, he is struck with one of the most magnificent spectacles in the whole compass of nature; a bay an hundred miles in circumference, surrounded with a vast amphitheatre of mountains, which rise in every varied form, and are covered with eternal verdure. Vessels of all dimensions may enter and repose with perfect security in every part of this immense basin. The city, which is called St Sebastian, is situated upon a hill on the north eastern side of the bay. It is better built than St Salvador. The streets are straight; the houses generally of two stories, and many of them handsome. The town contains 60,000 inhabitants. The province is not yet so well cultivated as Bahia; but its capacities are equal, and it is rapidly improving.

The government of Rio Janeiro includes also the ancient captaincies of Spiritu Santo on the north, and St Vincent on the south. The former has been boasted of as the most fertile province of all Brasil. The water and the land are equally productive; and the woods are filled with innumerable wild animals for hunting. The Indians are very numerous in this district, great numbers having been converted by the Jesuits. The harbour of Spiritu Santo is composed of a bay, the entrance into which is attended with some risk, on account of dangerous rocks which run along the northern side, and of a bank of sand which obstructs the narrowest part. A rock, which rises in the form of a sugar-loaf, and afterwards a white tower within the bay, form the beacons by which mariners are to be guided. The harbour, when entered, is commodious and secure.

To the north of Rio Janeiro is the captaincy of St Vincent, the least fertile and cultivated of all the rest. It has derived some importance, however, from its vicinity to the mines on one side, and, on the other, to the Spanish settlement of Buenos Ayres. In the interior lies the territory of St Paul, the residence of the Paulists, of whom we have formerly given some account, and in which some gold mines have recently been discovered. The principal cities are Santos and St Vincent, situated within a few leagues of each other. The former has an excellent harbour, the latter an indifferent one. But the place in this district which it is most important for us to be acquainted with, is the island of St Catherine, which, by the late treaty, was declared a free port to our trade, and in which British merchants may settle and practise their religion without molestation. Less, however, is known of this island than its importance deserves. It serves as a staple place to the products of the rich province of Rio Grande, not only on account of its vicinity, but from its excellent harbour, which is the best in Brasil except that of Rio Janeiro. The person to whom it was granted, in 1554, by the Portuguese government, was dispossessed by English corsairs, and the island then, neglected by its original possessors, became a common resort of all nations. It remained thus in a state of independence till about the year 1738, when the Portuguese government, now at peace, recollected that this island formed part of its dominion, and sent an administration to take possession of it. They fortified the road, and established a garrison. In 1778, it was invaded by the Spaniards, but restored, at the peace, to its ancient masters. It is nine leagues in length, and two in breadth, enjoys the utmost felicity of soil and climate, and one of the best harbours in all America. From its situation near the mouth of the river La Plata on one side, and the opulent capital of Rio Janeiro on the other, it is admirably calculated for becoming the emporium of an extensive commerce.

The governments now described extend all along the coast, and the cultivated land, as is usual in newly settled colonies, does not reach to any considerable distance inland. There is, however, in the interior, a large mountain plain, enjoying a very fine climate, which, though long neglected in comparison of the rest, was raised, by an unexpected circumstance, into distinguished importance. This circumstance was the discovery, in the beginning of last century, of the gold and diamond mines, which were all in this central district. When found thus productive in the most coveted objects of American wealth, it soon attracted the attention of the Portuguese court. It was divided into three governments, called Minas Geraes, or the General Mines; Goyaz; and Matto Grosso. Minas Geraes is by far the most productive. Its annual produce in gold is estimated at nearly £800,000 sterling; its inhabitants are reckoned at 35,000 whites, 26,000 Indians, 108,000 slaves. The capital is Villa Rica. The province of Goyaz produces annually in gold about £200,000. Its population is 9000 whites; 30,000 Indians; and 34,000 negroes. The capital is Villa Boa. The only town in Matto Grosso is Villa Bella, and its population does not exceed 2000 whites, 4300 Indians, 7300 negroes. It produces gold to the value of about £62,500.

Mr Lindley, the most recent traveller in Brasil, has given the following table of latitudes and longitudes, which he states himself to have obtained from Portuguese manuscript charts made after a new survey.

	Latitude.			Longitude.		
	°	′	″	°	′	″
City of Belem	1	30		48	30	
Maranon	2	32		43	40	
Ciara	3	31		38	23	
Cape San Roque	5	7		36	15	
Rio Grande	5	17		36	5	
Paraiba	6	40		35	30	
Olinda	8	2		35	15	
Cape San Augustine	8	26		35	15	
Rio San Francisco	10	58		37		
Bahia, or St Salvador	13			39	25	
Dos Ilheos	14	45		40	7	
Porto Seguro	16	40		40	12	
Rio Carevellos	18			40	22	
Banks of the Abrolhos	18			38	50	
Spiritu Santo	20	13		40	30	
Cape Frio	22	54		41	35	
Rio Janeiro	22	54	10	42	39	45
Santos	24			45	16	
Island of St Catherine	27	40		N. Pt. 47 S. Pt. 47	36 43	
Immediate north point of the river Plata, or Punta de Este	34	57	30	54	43	30

The port charges for every vessel not belonging to government, are at Fernambuco and Bahia, 4*l.* 18*s.* 4*d.*; and the daily expense of continuing in port 2*l.* 9*s.* 3½*d.* In Rio Janeiro the first expense is 7*l.* 4*s.* the daily expense 1*l.* 2*s.* ½*d.* The two former places afford the best materials for the repair of vessels; but it is more difficult to obtain permission to touch at them; and from being less accustomed to the visit of foreigners, they are more apt to treat them with rudeness. Masters of vessels ought as much as possible to transact business themselves, and trust little to the natives. Caulking is performed in Brasil in a manner not excelled by any place in the world.

Inhabitants of Brasil. Portuguese.

The population of Brasil is composed of Portuguese, negroes, and Indians. The former do not differ materially in character from those in the mother country. They are still more superstitious. In the principal towns, never a day passes, that some saint is not carried in procession through the streets, the figure of which, though extremely rude and grotesque, is adorned with jewels and precious stones, which are chearfully lent by the wealthier inhabitants. The ceremony is accompanied by the populace with rockets, squibs, and other demonstrations of extravagant joy. The manners, however, of the numerous monks and priests are generally described as no ornament to their profession. Yet Brasil possesses the advantage of the mother country in having been always free from the scourge of the inquisition. Those who are supposed liable to its sentence, may be sent to Lisbon and tried there; but still its yoke must be much less severe, than if it were established, and acting on the spot.

The Brasilians are generally branded by foreigners with the character of craft and perfidy; vices natural to the subjects of an absolute government, especially of one which imposes such a multitude of superfluous and ruinous restraints on commercial intercourse. Revenge and cruelty formed also prominent features, and assassinations were frequent; but in the southern provinces of Bahia and Rio Janeiro, the greater refinement of society has greatly alleviated the violence of these passions; though at Fernambuco and in the north, they still rage as much as ever. The manners of both sexes are generally described as extremely licentious; and those of the ladies of Rio Janeiro have been exposed to peculiar reproach, from the custom of throwing flowers from the windows on passing strangers. Mr Barrow, however, candidly supposes, that this is merely a national custom, which is not understood to imply any dereliction of virtue. There seems no doubt, however, that Brasil contains a full proportion of licentious characters of both sexes.

Except religious ceremonies, there are few public amusements in the cities of Brasil. Their attempts at theatrical entertainment are wretched, both in point of accommodation and performance. Music only, for which the people possess a natural talent, is performed with tolerable skill. But the most favourite of all recreations is the dance of the country, a compound of the Spanish fandango with the negro, and surpassing both in licentiousness. Growing refinement of manners, however, is gradually banishing this indecent exhibition, which is now indulged in with some degree of secrecy. In Bahia, by the latest accounts, card parties had begun to be established, which promise to bring the tone of society nearer to the European standard.

The gorgeous magnificence in which the wealthy Brasilians indulge, is accompanied with a total neglect of internal neatness and cleanliness. This appears in their clothes, in the furniture of their houses, and in the manner of preparing their food, which is in the highest degree disgusting. Their bodies are filled with vermin, which are searched for without disguise, and a certain cutaneous disorder, the consequence of filth, which is accounted so disgraceful in this country, is there so universal, that no one thinks of concealing it. Notwithstanding the abundance of cattle, provisions are bad, as the inhabitants are incapable of those attentions which, in a warm climate, where perspiration is so profuse, are necessary in order to fatten them. There are no inns for the accommodation of strangers: A person who takes up his residence, for however short a time, must hire and furnish a house for himself.

The most profound ignorance reigns throughout this country; and there seems as yet to be no impulse of curiosity which can afford the hope of its speedy dispersion. Some naturalists belonging to a British vessel, having engaged in an excursion into the country, and being seen wandering through its unfrequented tracts, the government took alarm at so unaccountable a conduct, which was removed by the assurance that they were catching butterflies. Thus the inexhaustible field which this country opens for the cultivation of botany and natural history is yet untrodden; and even the condition of the neighbouring Indian nations, though so interesting and accessible an object of enquiry, has not received any illustration from them.

There is one characteristic, very little to be expected under such a government, in which the Brasilian colonists do not seem to fall short of the freest people of the new world; this is in the general sentiment of equality which pervades all ranks. The white servant converses with his master on the most equal footing, and instead of promptly obeying his commands, enters into a discussion on their propriety, and often advises a different course of proceeding; all which the master takes in good part, and often adopts his suggestions. The same manners prevail among the troops, and even on board ships of war. Never an order is issued, which does not become an immediate subject of debate and dispute; till the captain, who apparently is not so indulgent, terminates it by the vigorous application of a strong cane, which he carries constantly about with him. An Englishman, who ventured to remonstrate against the very liberal use of this instrument, was assured, that "no work could go on without it." The naval officers, indeed, seem to know very little how to keep up their dignity, since they are often seen engaged in the same card party with the private sailors.

Negroes.

This sentiment of equality, which, though attended with some inconveniences, cannot be considered as the worst feature in the character of the Brasilians, operates with peculiar advantage in mitigating the severity of negro slavery. This class assume in their manner the same equality which is practised by the other inhabitants; they are well fed, and not hard worked; and they are allowed two days in the week to labour for themselves, by which means many are enabled to purchase their freedom, while others obtain it by favour. It was even enacted by the late King of Portugal, that, after remaining in bondage for ten years, they should be entitled to their liberty; but though this law has never been repealed, its execution has been evaded by the planters. The negroes whose condition is hardest, are those employed in the mines, particularly of diamonds; for when suspected of swallowing these, with a view to secrete them, violent emetics and cathartics are often administered, with the view of making them disgorge the hidden treasure; a treatment the more severe, as it is often founded on unjust suspicion.

Ind

The Indians form the third division in the population of Brasil. The conduct of the court of Lisbon with regard to this unfortunate class of men, has, from the first, been singularly liberal and humane. This has been principally owing to the solicitations of the Jesuit missionaries, who may justly be considered as the principal benefactors of the new world. The first settlers, in their predatory warfare with the natives, made slaves of all those who fell into their hands, and probably undertook expeditions for the express purpose of obtaining them. These practices were, in 1570, prohibited by King Sebastian; the prohibition was confirmed, in 1595, by Philip II.; and successive regulations to the same effect were issued at the beginning of the following century. The necessities of the colonists, however, who could cultivate their lands only by the labour of Indians, evaded the execution of all these laws, even though they were repeated in a still more formal manner, in 1647. The court, however, continued still indefatigable in issuing its mandates, and at length, in 1755, under the vigorous, and in some respects, enlightened administration of the Marquis of Pombal, the measure was finally carried into execution. The court of Lisbon certainly derive high honour from this unwearied perseverance. The benefits, however, which were expected to result from it by the friends of humanity, have not yet been fully realised. The natural indolence of this people, their want of capital, and of opportunity, have prevented them from emerging from their original degradation. They are employed only in the most menial offices; they form the sole exception to the general system of equality, and enjoy a consideration decidedly inferior to that even of the negro slaves. Their intercourse is almost solely between themselves; and their quiet suspicious character indicates the state of humiliation in which they are held.

Having thus given a general sketch of the discovery and history of Brasil, and of the different provinces into which it is divided, we shall conclude this article with the information which we have been able to collect respecting the statistics and commerce of this interesting portion of the new world.

Natural geograp

When the Europeans first settled in Brasil, the country was extremely unhealthy, from the thick forests with which it was covered. But as the cultivation of sugar increased, and when the woods were cut down, the soil became fertile, and the climate mild and healthy. In consequence of the refreshing winds which constantly blow from the sea, the air is not only cool, but, during the night, it is so chill, that the natives are obliged to light fires in their huts. The northern provinces are subject to severe storms and heavy rains, but those in the south are more fertile and temperate. The rainy season in Brasil begins in April and ends in August; and though the temperature is then greater than during the dry season, it is called winter by the inhabitants.

In the interior of Brasil there are great chains of mountains, mingled with superb vallies and large fertile plains. The principal chain passes westward from the government of St Paul; but this and the other mountainous ranges have never yet been described.

The principal rivers of Brasil are the Maragnan, the Paraiba, the Para, the Panacas, the Tocantin or Socantin, the San Francisco, the Rio dos Ilheos, the Rio Dolce, the Parana, and the Rio Grande. The merchandise of Europe is carried up the Rio Grande, partly by the force of oars, and partly by drawing the vessels with ropes. Sometimes more than two months are spent in this tedious navigation; but the gold and silver, and merchandise of America, which comes from the new kingdom of Granada, are brought down the river in the short space of three weeks. The Rio Dolce runs in a serpentine motion from west to east, and after receiving different rivers, it waters the province of Spiritu Santo, which it separates from that of Seguro, and then runs into the sea. The San Francisco, whose source is not well ascertained, runs to the north east, and after passing for a considerable way under ground, it takes an easterly course, and separating Fernambuco from Sergippé, it empties itself into the ocean. The Parana, after mixing its waters with the river Gaibuio, joins the San Francisco. The river Para, which is known only at its embouchure, runs from south to north, and falls into the gulf formed at the mouth of the river Amazons.

The principal productions of Brasil are tobacco, wood, sugar, salt, and hides. The culture of tobacco, which forms a considerable branch of the revenue, occupies only a small part of the year; and the labour is so easy, that a single negro can manufacture annually about two thousand pounds weight. The tobacco is put up in rolls of from 200 to 300 pounds each, and is exported to Europe, and to Higher and Lower Guinea.

Timber forms the natural staple of a yet uncultivated country; and no region in the world produces finer forests than those of Brasil. The principal woods, as we have already observed, lie on the Rio Grande, in the captaincy of Porto Seguro. One species, called the *sippipira*, resembles the teak of India, which is well known to be superior to any European wood for firmness and durability. There are also the *peroba*, *oraubu*, and *louro*, which resemble species of oak and larch. There are, besides, lighter kinds of wood, similar to fir; not to mention logwood, mahogany, brasil, and an infinity of ornamental and dying woods. The government, however, according to its usual system, as soon as it appeared that profits were likely to be derived from timber, assumed to itself the exclusive monopoly of that article. The consequence is, that every person who becomes proprietor of a forest, begins with destroying all the finest of the trees, which would otherwise be seized by the intendant, whose odious visits it is desirable to avoid. Notwithstanding this oppressive system, excellent vessels are still built in Brasil, at about half the price which they would cost in Europe. The privilege which Britain has obtained, of cutting timber from these noble forests, and of building ships on the spot, may thus prove of incalculable importance.

Brasil.

Sugar. Sugar is cultivated to a great extent in Brasil. In the time of Pirard, about the middle of the last century, it formed the principal riches of the country. In the course of 150 leagues along the coast, from 25 leagues beyond Fernambuco, to 25 leagues beyond the bay of All Saints, Pirard counted above 400 sugar mills, each of which manufactured annually about 100,000 arobas of sugar.*

Hides. The number of cows produced in Brasil is so great, that they are, for the most part, slaughtered merely for the sake of their skins, many thousands of which are annually exported. The immense number of carcases which are thus left to be devoured by birds and wild beasts, would afford room for an extensive trade in provisions, were not the salt trade prohibited by the monopolising spirit of the government.

Salt. In Bajo, near Cabo Frio, salt is gathered in such abundance, that whole ships might be loaded with it. "In the country of the Mines, or Minas Geraes," says Da Cunha, "salt becomes so indispensible a necessary, that not only men, but cattle, and other animals, require it for their food. In every place where a high mountain extends from the sea to the mines, salt must be given to the cattle, else they would often refuse their usual fodder. The fields, near these mines, produce, indeed, plenty of grass; but not salt enough to feed the cattle. Thus large tracts of land must be lost, or the cattle must have salt, which is much higher in price than they themselves.

It is remarkable, too, that, in the interior parts of these countries, where nature has impregnated the soil with salt, quadrupeds and birds flock together, to eat of this earth. A combination of so many animals, of various species and colours, on one single spot, and the different tones which they utter, exhibit a most diverting spectacle to the curious observer.

Salt, a product so indispensibly requisite to keep and preserve meat and fish, is uncommonly dear in those parts. The quantity necessary to salt an ox, costs, in many places, twice or three times as much as the ox itself. Such, too, is the case with fish. In the province of Rio Grande, a bullock costs 700 reis (about four shillings and six pence English), a horse from 6 to 800 reis, the largest and fattest oxen 1600 reis per head (10 shillings and 8 pence,) a cheese weighing 9 pounds 160 reis (one shilling), a pound of butter 40 reis (three pence), &c.

The salt trade being prohibited throughout Brasil, the exclusive privilege for this useful branch of commerce is farmed out to one individual, who pays for it the sum of 48,000,000 of reis, every year, into the royal treasury. This farmer gets annually from Brasil ninety-six millions of reis, of which forty-eight millions go to the queen's treasury, and an equal sum remains for himself, his agents, and receivers, even after deducting all the principal expences of the salt, including freight and carriage. But much more considerable are the profits he draws from the inner parts of those districts, where the herds are more numerous, the demand for salt consequently greater, and the price of that article enhanced in proportion to the expence of carriage over the many mountains which are there to be met with.

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* An aroba weighs about 32 pounds French, and 4 arobas make a quintal.

On account of the vast sum of money which is thus every year drawn from Brasil, for the sole purpose of enriching the individual to whom the salt trade has been farmed out, all the rest of the inhabitants of those countries are made losers; at least their gain is materially prejudiced by the monopoly.—The whole commerce of Portugal, indeed, is made to forfeit, by this abuse, infinite emoluments and advantages which would otherwise accrue to it, from a greater abundance of salt fish, butcher's meat, bacon, cheese, and butter, that would be preserved and brought to market. Thus the royal treasury, for the sake of the comparatively paltry consideration of forty-eight millions of reis a year, robs itself of much larger sums, which the duties on these products would fetch, but for the factitious dearness of salt."

Grapes. There seems strong reason to believe, that wine might be produced abundantly in Brasil. At Bahia, the most delicious grapes are reared in the gardens of individuals; but the want of industry prevents their cultivation from becoming general; and the extreme heat presents even an obstacle to their being made into wine. About Rio Janeiro, however, which is nine leagues farther south, and above all in the mountainous districts, there seems no doubt that this important article might be produced in perfection. The government, however, adhering to their mean spirit of monopoly, have discouraged and even prohibited its production, in order that it may not interfere with the commercial interests of the mother country.

Whale fishing. No situation can be better adapted for the whale fishery, than this coast, which everywhere abounds in these animals. Some are killed by large boats from the shore; but there is no proper provision, either for taking the whales, or for extracting the oil. If there were, this might be rendered an important branch of commerce.

Tea. It is mentioned in a curious manuscript, written in 1578, and recently published by Mr Southey, that tea was found wild in the neighbourhood of Bahia, of similar and equal quality to that of China. We have not found this mentioned by any of the modern relations, and the observation seems to have sunk into oblivion. If correct, however, the cultivation of a plant for which the demand in Europe is so ample, would open a copious source of wealth to Brasil.

Besides the productions we have mentioned, the part of Brasil called Amazonia, produces vanilla, coffee, cotton, and great quantities of cacao nuts, which, till lately, were the current money of the country.

The mineral productions of Brasil are even superior to those of its soil. The country, according to Andrada,* is divided into four mineral *comarcas* or districts, which, going from north to south, are, 1. St Joao del Rey; 2. Villa Rica; 3. Sabara; 4. Serro do Frio, or the Cold Mountains. This last district not only produces diamonds, but abounds in mines of iron, antimony, zinc tin, silver, and gold. These mines were discovered by Antonio Soary, a Paulist, who first found out those of gold. The diamonds were afterwards discovered in the Riacho Fundo, in the Rio da Peixe, in the Saguitmhonha, and in the Guarapara in St Pauls. These precious stones were supposed originally to exist in the mountains, but they are more easily found in a bed under the vegetable mould, disseminated and attached to a gangart, more or less compact and ferruginous. They are likewise often found in the soil of the mountains, in beds of ferruginous sand and pebbles, forming an ochraceous pudding stone, of the decomposition of emery and boggy iron ore. Beneath the pudding stone, or cascalho as it is called, there is a schistus, somewhat sandy, and sometimes there is an indurated ore of iron. The mines are farmed to individuals, and employ from seven to eight thousand negroes. They are near the little river of Millhoverde, not far from Villa Nova do Principe, in 7° of South Latitude, and 44° of West Longitude. Diamonds have also been found in Cayaba, and in St Pauls, but the mines have not been explored. The other mines are situated in the mountains, and among the sources of the numerous streams that flow into the river Tocantin on one side, and the Parana on the other. There are mines of gold as far in the interior as the river Cayaba, which runs into the Paraguay, and even near the river Itenas. According to M. Pau,† the mines of Brasil have produced, from the time of their discovery till the year 1756, being 60 years, nearly 2,400,000,000 livres tournois, which at an average is about 40,000,000 livres tournois in a year.

In the neighbourhood of Bahia, in the direction of west south west, there are great mines of nitre, which have not yet been wrought.

As we are indebted to Bougainville for the most complete account of the diamond and gold mines of Brasil, we shall conclude this article with an extract from the voyage of that celebrated navigator.

" Rio Janeiro is the staple and principal outlet of the riches of Brasil. The mines called general, are the nearest to the city, at the distance of about seventy-five leagues. They yield to the king, every year, for his right of fifths, at least a hundred and twelve arobas of gold; in 1762 they yielded a hundred and nineteen. Under the captaincy of the general mines, are comprehended those of Rio do Morte, of Sabara, and of Serro-frio. The last besides gold, produces all the diamonds that come from Brasil. They are found at the bottom of a river, of which they turn the course, in order to separate from the pebbles in its bed, the diamonds, topazes, chrysolites, and other stones of inferior quality.

Of all these stones, the diamonds alone are contraband: they belong to the undertakers, who are obliged to give an exact account of the diamonds found, and to place them in the hands of the intendant appointed by the king for this purpose, who deposits them immediately in a casket encircled with iron, and shut with three locks. He has one of the keys, the viceroy another, and the assayer of the royal treasury the third. This casket is enclosed in a second, sealed by the three persons above-mentioned, and which contains the three keys of the first. The viceroy has not the power of visiting its contents. He only consigns the whole to a third strong coffer, which he sends to Lisbon, after having set his seal on the lock. They are opened in the presence of the king who chooses what diamonds he pleases, and pays the price to the undertakers at the rate fixed by their agreement.

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* *Actes de la Soc. Hist. Nat. de Paris.* Paris, 1792.

† *Recherches sur les Americains.*

The undertakers pay to his most faithful majesty, the value of a piastre Spanish money, each day, for every slave employed in searching for diamonds; and the number of these slaves may amount to eight hundred. Of all kinds of contraband trade, that of diamonds is the most severely punished. If the offender be poor, it costs him his life; if he has wealth sufficient to satisfy the law, besides the confiscation of the diamonds, he is condemned to pay twice their value, to one year's imprisonment, and is afterwards banished for life to the coast of Africa. Notwithstanding this severity, there is a great contraband of diamonds, even the most beautiful; the hope and ease of concealing them being increased by the small size of the treasure.

The gold drawn from the mines cannot be carried to Rio Janeiro, without being first brought to the smelting houses established in each district, where the right of the crown is received. What results to private persons is remitted in bars, with their weight, number, and the royal arms. All this gold has been assayed by a person appointed for this purpose, and on each bar is imprinted the standard of the gold; so that afterwards in the coinage the operation necessary to estimate their due standard may be easily performed.

These bars belonging to individuals are registered in the factory of La Praybuna, thirty leagues from Rio Janeiro. In this station are a captain, lieutenant, and fifty men: here is paid the right of fifths; and besides a toll of a real and a half per head on men, cattle, and beasts of burden. Half of the product of this duty belongs to the king, and the other half is divided between the detachment according to rank. As it is impossible to return from the mines without passing by this office, all persons are there stopped, and searched with the greatest severity.

Individuals are afterwards obliged to carry all the gold in bars, which belongs to them, to the mint of Rio Janeiro, where the value is given in coin, commonly in half doubloons, each worth eight Spanish dollars. Upon each of these half doubloons the king gains a dollar, by the alloy and the right of coinage. The mint of Rio Janeiro is one of the most beautiful which exist; it is furnished with every convenience to work with the greatest celerity. As the gold arrives from the mines at the same time that the fleets arrive from Portugal, it is necessary to accelerate the work of the mint, and the coinage proceeds with surprising quickness.

The arrival of these fleets renders the commerce of Rio Janeiro very flourishing, but chiefly that of the Lisbon fleet. That of Porto is only laden with wines, brandy, vinegars, provisions, and coarse cloths, manufactured in that city or its environs. Soon after the arrival of the fleets, all the merchandise brought is taken to the custom-house, where it pays ten *per cent.* to the king. It is to be observed, that at present the communication of the colony of St Sacramento with Buenos Ayres being severely prohibited, these rights must experience a considerable diminution. Almost all the most precious articles were sent from Rio Janeiro to the colony of Sacramento, whence they were smuggled to Buenos Ayres into Chili and Peru; and this fraudulent commerce was worth every year to the Portuguese more than a million and a half of dollars. In a word, the mines of Brazil produce no silver; all that the Portuguese possess is acquired by this contraband trade. The negro trade was also an immense object to them. It is impossible to compute the loss occasioned by the almost entire suppression of this branch of contraband trade. It occupied alone at the least thirty vessels in the coasting trade from Brazil to La Plata.

Besides the ancient right of ten *per cent.* paid to the royal custom-house, there is another of two and a half *per cent.* imposed under the title of free gift, since the disaster at Lisbon in 1755. It is paid immediately on leaving the custom-house, whereas a delay of six months is granted for the tenth, on giving good security.

The mines of St Paolo and Parnagua yield to the king four arobas for the fifths every year. The most distant mines, as those of Pracaton and Quiaba (Cuyaba,) depend on the captaincy of Matogroso. The fifth of the above mines is not received at Rio Janeiro, but that of the mines of Goyas is deducted. This captaincy also possesses diamond mines, which are forbidden to be worked.

The whole of the expense of the king of Portugal at Rio Janeiro, for the payment of the troops and civil officers, and for the charges of the mines, the maintenance of the public buildings, the careening of vessels, amounts to about six hundred thousand dollars. The expenses of building ships of the line and frigates there stationed are not included.

Recapitulation, and the amount of the average of different objects of royal revenue.

	Dollars.
A hundred and fifty arobas of gold, the average produced by the royal fifths, are in Spanish money	1,125,000
The duty on diamonds	240,000
The duty on coinage	400,000
Ten *per cent.* from the custom-house	350,000
Two and a half *per cent.* of free gift	87,000
Right of toll, sale of employments, offices, and generally all the profits of the mines	225,000
Duty on slaves	110,000
Duty on fish oil, salt, soap, and the tenth on the provisions of the country . . .	130,000
Total	2,667,000

From which, deducting the above expenses, it will be seen that the king of Portugal draws from Rio

Janeiro, a revenue exceeding ten millions of French livres."

According to the author of the *Etat Present du Portugal*, there are 12 cities in Brasil, 66 towns, many villages; one archbishop, four bishops, and about 430,000 inhabitants, more than one sixth of whom are Portuguese.

See Southey's *History of Brasil;* Purchas's *Pilgrims*, vol. iv.; *Histoire Generale des Voyages*, vol. xiv.; Harris's *Voyages and Travels*, vol. ii.; Raynal's *East and West Indies*; Lindley's *Voyage to Brasil;* Barrow's *Voyage to Cochinchina*, &c.; and *A Political Essay on the Commerce of Portugal and her Colonies, particularly of Brasil in South America*, by J. J. Da Cunha de Azeredo Coutinho, Bishop of Fernambuco; London 1801.

BRASS, or LATTEN, a combination of zinc and copper, is produced by the fusion of the latter metal, and *lapis calaminaris.* It is capable of being wrought with great facility, and is applied to a variety of purposes in the arts.

It is of a beautiful yellow colour, more approaching to gold, and not so apt to tarnish or rust as copper. It is more ductile than either that metal or iron, and hence peculiarly fitted to be made into wire. As brass is in general used for mathematical and astronomical instruments, where the greatest precision is required, its expansion has been very accurately determined. It has been found to hold a middle place between its component metals—copper and zinc; and, according to Mr Smeaton, twelve inches in length of cast brass, at 30°, expanded by 180° of heat 225 ten thousandth parts of an inch; while, in the same circumstances, hammered copper expands only 204, and zinc 353 parts. Its density is beyond the mean, and ought to be by calculation 7.6296, but is actually 8.3958. See EXPANSION.

This beautiful alloy was known at a very early period. It was first discovered from the singular circumstance of copper ore, and zinc earth, or *calamine*, sometimes called *cadmia* by the ancients, being found in one mine, and yielding, when melted, not pure copper, but metal of a yellow colour; and from its resemblance to gold, the mines which contained this ore were held in the highest estimation. It was, however, afterwards discovered, that a certain earth, when added to copper, when in the furnace, gave it a gold-colour. This earth, which must have been calamine, is mentioned both by Aristotle and Strabo; and Pliny says, "*Ipse lapis, ex quo fit æs, cadmia vocatur*;" and when speaking of the Marian brass, "*Hoc a Liviano (ære) cadmiam maxime sorbet.*"[*] Its use has been handed down through every century, and is still retained in the manufacture of brass. This discovery was no sooner effected, than the ancient method of procuring this metal was abandoned. Pure copper was first extracted from the ore, and then converted into brass by the addition of calamine. But as the art of making brass with *lapis calaminaris* was not well understood by the ancients, but cost them much trouble and expence, it was esteemed next to silver; and was reckoned little inferior to that metal, as we learn from Procopius, who says, "that brass, inferior to gold in colour, is almost equal to silver in value."[†] It was not considered as a distinct metal, but only a more valuable kind of copper; and hence we find that the word *æs*, which is generally translated brass, was used indifferently to denote either of the two metals. The term *orichalcum*, however, which is used by Pliny, was more definite; and Dr Watson has very satisfactorily shewn, that it was confined entirely to brass, while copper was called *æs cyprium*, and by later writers *cuprum*. But the mines which produced the orichalcum of Pliny were exhausted in his time "*Nec reperitur longo jam tempore, effœta tellure*;"[‡] as also the Sallustian mine in Savoy, and the Livian mine in France; and the best brass then in use, was the Marian, called also *æs cordubense*, which was found in Spain.

In modern times, considerable improvements have been made in the manufacture of this metal; and some secrecy is observed by those who have the reputation of making the finest article. This manufacture is carried on in most countries, but no where is brass made more extensively or better than in England, where both the materials are found of the first quality, and in great abundance. The operation of making this metal is very simple, as will appear from the following short description. The native calamine, after the short process of calcination, is ground in a mill, and mixed at the same time with about a fourth part of charcoal. This mixture is put into large cylindrical crucibles, with alternate layers of copper, cut in small pieces, or in the form of shot. Powdered charcoal is then thrown over the whole, when the crucibles are covered and luted up. The furnace has the form of a cone, with the base downwards, and the apex cut off horizontally. The crucibles are placed upon a circular grate, or perforated iron plate, at the bottom, with a sufficient quantity of fuel thrown round them, and a perforated cover, made of bricks or clay, is fitted to the mouth, which serves as a register to regulate the heat. After the copper is supposed to be sufficiently penetrated with the zinc (the time varying in different works from ten to twenty hours, according to the nature of the calamine, and the size of the crucibles), the heat is increased in order to fuse the whole down into one mass, when the crucibles are removed, and the melted brass poured into moulds, and then manufactured in the same way as copper plate. When the materials are good, a single fusion is sufficient to make good malleable brass; but the finest sorts undergo a second operation with fresh calamine and charcoal. Though the process in all places is nearly the same, yet there is some variation in the proportion and choice of the ingredients. In this country, the proportions in weight are about 40 parts of copper, and 60 of calamine, with a sufficient quantity of charcoal; in Sweden, 40 of copper, 30 of old brass, and 60 of calamine; in France, 35 of copper, 35 of old brass, 40 of calamine, and from 20 to 25 of charcoal. At Goslar, in Saxony, the *cadmia*, or sublimed oxide of zinc, is used instead of the native calamine; and the proportions are 30 parts of copper, from 40 to 45 of cadmia, with double the volume of charcoal.

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[*] *Nat. Hist.* lib. xxxiv. cap. 2. and 10.

[‡] *Nat. Hist.* lib. xxxiv. cap. 2.

[†] *De ædificiis Justiniani*, Lib. i. cap. 2.

The use of brass seems to have been very prevalent among the ancients. Most of their arms were composed of this metal, as appears from Homer, who, in his description of the Greeks, calls them χαλκοχιτωνες Αχαιοι, *brass-coated Greeks*; and we are expressly told by Hesiod, that brass was in general use before even iron was known.

> Τοῖς δ' ην χαλκεα μὲν τεύχη, χαλκεοι δε τε οἶκοι
> Χαλκῷ δ' εἰργάζοντο, μελας δ' οὐκ ἔσκε σίδηρος.[*]
>
> Their houses brass, of brass the warlike blade;
> Iron was yet unknown, in brass they trade.

The Arundelian marbles also assert the same thing, and are followed by Lucretius.

> *Posterius ferri vis est ærisque reperta*
> *Sed prius æris erat, quam ferri, cognitus usus.*[†]

Most of the arms and instruments found in Herculaneum, Stabea, Pompeia, &c. whether culinary, mechanical, or agricultural, were made of brass, while those of iron were comparatively very few. It may be observed, however, that most of the genuine relics of this kind approach nearer to bronze than to our modern brass, and appear to be composed of various mixtures of brass with tin and other metals.

The Corinthian brass, so famous in antiquity, is a mixture of gold, silver, and copper, and is supposed to have been produced by the fusion of these metals, in which that city abounded, when it was sacked and burned by Lucius Mummius, in the 156th Olympiad, about 146 years before the Christian æra. Of this valuable metal, however, very little is known. Its æra of being in use must have been very short, as we are told by Pliny that the art of making it had been for a long time utterly lost;[‡] and no remains of it are now in existence.

The most celebrated and finest modern brass is made at Geneva. It unites great beauty of colour to a high degree of ductility, and is used chiefly for escapement wheels, and other nicer parts of watch-making. See Beckmann's *History of Inventions*, vol. iii. p. 72, &c.; Thomson's *Chemistry*, vol. i. p. 172; Pinkerton's *Essay on Medals*, vol. i. p. 133; Watson's *Essays*; and Pliny's *Nat. Hist.* lib. xxxiv. See also CHEMISTRY. (L)

BRASSICA, a genus of plants of the class Tetradynamia, and order Siliquosa. See BOTANY, page 262, and GARDENING. (*w*)

BRAVA, BRAVO, or ST JOHN, one of the Cape de Verd Islands, is about four leagues in circumference, and lies in North Lat. 15° 25′, and nearly 430 miles west from Cape de Verd. The land is high, and the mountains appear at a distance like pyramids rising from the ocean. These are little better than barren rocks, but the vallies are covered with a light soil, which produces maize, gourds, water melons, and potatoes. Cotton is also a production of this island; and it is even said by some travellers, that it furnishes excellent wine, equal to that of the Canaries, and that oranges and lemons grow here in great abundance. Horses, cows, asses, and hogs, are in great plenty, particularly the hogs, as the islanders never eat the flesh of these animals except on feast days. Wild goats, which had been carried there by the Portuguese, and had muliplied prodigiously, are now almost extinct; and in order to preserve the species, a law is in force, whereby none are allowed to be killed but for the use of the governor. Brava abounds in saltpetre; and from the quantity of vitriolic springs, we may conclude, that this island is rich in metallic ores. As a proof of this, Mr Roberts assures us, that a clean knife, put into one of these springs, in less than a minute is covered with pieces of copper of a beautiful gold colour, and if it remain any time, and is then allowed to dry, the copper, when scraped off, falls like powder, while the knife retains the colour of gilt-silver. Salt is here made in great plenty in the holes of the rocks, from the water which has been left by the ebbing of the tide, or carried thither by the negroes. Two or three hours of the sun's heat, in a clear sky, is sufficient for the operation; and it is surprising to see four bushels of salt drawn from a hole not above 12 or 15 feet in extent. It is evident, however, that certain rocks only have the quality of hastening the formation of salt, while others have the quality of impeding it. In some, nothing remains after the exhalation of the water except a muddy sediment, but very salt, and sometimes only a very thin crust resembling that of cream of tartar.

This island was first discovered by the Portuguese, and for many years two negro families were its only inhabitants, until 1680, when a famine having afflicted the island of Fuego, some of the poorer inhabitants were driven by want to seek for refuge in Brava. They were received with joy by the negroes, who supplied them with every necessary of subsistence, and even shared with them their cattle, which was their only wealth. The number of inhabitants now amounts nearly to 500. The more industrious of these live by agriculture and the feeding of cattle, while the indolent languish in extreme poverty, and subsist chiefly on wild figs. Commerce is here completely neglected, and though this island is better fitted as a place of refreshment for ships to water and take in provisions than the island of St Jago, which is in general preferred, yet, for the space of seven years, two foreign vessels only have entered the island of Brava. It has several commodious bays and roadsteads, the principal of which are the bay of Faciend de Agna, on the north-west: on the south-west the bay of Ferriere, which has excellent anchorage, and is very safe during the months of March, April, and May; but is exposed, particularly in the three winter months, to the violent gusts which come from the vallies, and to the south-east and south south-west winds, which blow very strong during the rainy seasons. The bay of Fuerno is the best of the three, but is less frequented than the bay of Ferriere only because less known. See Sir George Staunton's *Embassy to China*, vol. i. p. 136., and Peuchet *Dictionnaire*, &c. (L)

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[*] *Oper. et Dieb.* lib. i.

[†] *De Natura Rerum*, lib. v.

[‡] Lib. xxxiv. cap. 2.

BRAVA, supposed to have been the *Essina* of Ptolemy, is a small independent state of Africa, lying between the coasts of Zanguebar and Ajan. It is under the protection of the Portuguese, to whom it pays an annual tribute of 400 pounds weight of gold, and is said to have been first established by seven brothers, who had been driven from Arabia Felix by the tyranny of their sovereign. The capital stands on a beautiful bay at the mouth of a river, about 100 miles south west of Magadoxo, and most conveniently situated for commerce. It is well built and strongly fortified, and was formerly considered as one of the most celebrated and best frequented marts on that coast. But having resisted the payment of their tribute, the Portuguese admiral, Tristran de Cugna, laid siege to the city in 1508, which, after a severe and bloody conflict, was taken, plundered, and burnt to the ground. From that time Brava has never been able to recover its former eminence as a place of trade. It is still, however, inhabited by many wealthy merchants, who carry on a considerable traffic in gold, silver, silk, cotton and other cloths, elephants teeth, and various kinds of drugs, particularly ambergris, which is very plentiful on the coast of Brava. The people generally dress in the Portuguese manner, and consume great quantities of European commodities. North Lat. 1° 10′, East Long 44°. See Peuchet *Dictionnaire, &c.* (L)

BREACH. See GUNNERY, and MILITARY TACTICS.

BREAD, a nutritive substance, made of corn or other farinaceous vegetables, ground into flour or meal, and kneaded with water, generally with the addition of leaven or yeast.

However indispensible bread may now appear as an article of food, the art of baking was by no means an early discovery; and even at present there are some savage nations to whom it is altogether unknown. The fertility ascribed by the poets to the golden age, when the earth spontaneously offered corn and every thing necessary to the subsistence and comfort of man, is only so far fabulous, as they assign to one spot, or to every portion of the globe, the blessings which were scattered up and down through various and remote parts of its whole extent. It is perfectly evident, that no cultivation could create a single grain; and of course, that every species of corn must have originally been the spontaneous production of some region of the earth. Yet as these corns, previous to cultivation, would grow in small quantities, their importance as articles of food, might long escape observation; and mankind would in the meantime subsist on the more obvious and plentiful, though less nutritious vegetables, which were within their reach. According to the prevailing traditions of almost every country, acorns and berries appear to have constituted the chief vegetable food of the primæval race of men. This state of simplicity and ignorance continued for several ages, till, according to the obscure intimations of the Grecian fabulists, Ceres descended from heaven, to direct mankind to the use of corn, and to teach them the art of agriculture. Pliny informs us, (*Nat. Hist.* l. xviii. c. 7.) that barley was the only species of corn at first used for food; and even after the method of reducing it to flour had been discovered, it was long before men attained the art of baking it into bread.

At first, they seem to have contented themselves with boiling their flour or meal into a kind of porridge or pudding; and when at length they became acquainted with the method of kneading it into dough, their bread was nothing more than a kind of tough unleavened cake. The baking of these cakes, instead of being left to any particular set of men, as a distinct profession, was one of the principal concerns of the matrons. In those rude ages, when the prince himself slaughtered the lamb, which was to supply his table, the most dignified ladies did not disdain to employ their fair hands in kneading the dough. In this first stage of the art of baking, the use of ovens was unknown; and the cake, when properly kneaded, was toasted either on a warm-hearth, or on a gridiron.

Ovens were first invented in the East. Their construction was understood by the Jews, the Greeks, and the Asiatics, among whom baking was practised as a distinct profession. In this art, the Cappadocians, Lydians, and Phœnicians, are said to have particularly excelled. It was not till about 580 years after the foundation of Rome, that these artisans passed into Europe. The Roman armies, on their return from Macedonia, brought Grecian bakers with them into Italy. As these bakers had handmills beside their ovens, they still continued to be called *pistores*, from the ancient practice of bruising the corn in a mortar; and their bakehouses were denominated *pistoriæ*. In the time of Augustus there were no fewer than 329 public bakehouses in Rome; almost the whole of which were occupied by Greeks, who long continued the only persons in that city acquainted with the art of baking good bread.

In nothing, perhaps, is the wise and cautious policy of the Roman government more remarkably displayed, than in the regulations, which it imposed on the bakers within the city. We have already observed, (see BAKING,) that to the foreign bakers, who came to Rome with the army from Macedonia, a number of freedmen were associated, forming together an incorporation from which, neither they nor their children could separate, and of which even those who married the daughters of bakers were obliged to become members. To this incorporation were given all the mills, utensils, slaves, animals, every thing, in short, which belonged to the former bakehouses. In addition to these, they received considerable portions of land; and nothing was withheld, which could assist them in pursuing, to the best advantage, their labours and their trade. The practice of condemning criminals and slaves, for petty offences, to work in the bakehouse, was still continued; and even the judges of Africa were bound to send thither every five years, such persons as had incurred that kind of chastisement. The bakehouses were distributed throughout the fourteen divisions of the city, and no baker could pass from one into another without special permission. The public granaries were committed to their care; they paid nothing for the corn employed in baking bread, that was to be given in largess to the citizens; and the price of the rest was regulated by the magistrates. No corn was given out of these granaries except for the bake-houses, and for the private use of the prince. The bakers had besides private granaries, in which they deposited the grain, which they had taken from the public granaries for immediate use; and if any of them happened to be convicted of having diverted any portion of the grain to another use, he was condemned to a fine of five hundred pounds weight of gold.

Most of these regulations were soon introduced among the Gauls; but it was long before they found their way into the more northern countries of Europe. Borrichius informs us, that in Sweden and Norway, the only bread known, so late as the middle of the 16th century, was unleavened cakes kneaded by the women. At what period in our own history the art of baking became a separate profession, we have not been able to ascertain; but this profession is now common to all the countries in Europe, and the process of baking is nearly the same in all.

Before we proceed to describe the method of making bread now generally practised, it may not be improper to give some account of the various kinds of bread made use of by the ancients. The Romans distinguished their bread by various denominations, according to its various qualities. 1. The finest kind, like our white bread, was made of the purest flour, from a species of wheat called *siligo*, held in very high estimation. The siligo of Italy was superior to all others, and the best bread was made of a mixture of siligo of Campania, the colour of which inclined to yellow, with the siligo of Pisa in Etruria, whose colour was exceedingly white. This bread was called *panis siligineus*, and sometimes *panis mundus*, *athleticus*, *isungia*, *coliphius*, and *robys*. As its price was high, it was used only by the richest class of citizens. 2. Next in purity to this, was the *panis secundus*, called also *smilaceus* or *smilagineus*, which was made of the finest flour, with a slight admixture of bran. 3. The next kind was the *autopyrus*, sometimes named *syncomastus*, and *confusaneus*, made, like our household bread, of the whole substance of the wheat, without retrenching either the finer flour, or coarser bran. 4. The worst kind of all, was that called *panis sordidus*, or *cacabaceus*, so wretchedly bad as to be fit only for dogs; it consisted chiefly of bran, from which circumstance it was called *furfuraceus*, *furfureus*, or *furfurativus*; in the middle ages, it was called *bissus* on account of its brownness; and sometimes also *leibo*.

Other kinds of bread were distinguished by particular names, derived either from the uses to which they were applied, or the manner in which they were made. Such were, 1. *Panis militaris*, or soldiers bread, which was in general very coarse and ill baked. The state merely furnished the soldiers with corn, and left them to prepare it as they pleased. For this purpose, they were generally provided with handmills, in which having ground their corn very coarsely, or in the want of hand mills, having bruised it in a mortar, or between two large stones, they kneaded it with their own hands, and baked it upon the coals. We are told by Herodian, that the emperor Caracalla, when along with his army, ate no other bread than that which he himself had baked. "Triticum enim sua manu molens, quod ipsi satis esset, massamque ex eo conficiens, et in carbonibus coquens, eo vescebatur." 2. *Panis civilis* was the bread which, in the latter days of the empire, was distributed to the people, in lieu of the corn which they had formerly been accustomed to receive. This custom seems to have been first introduced by Aurelian. The loaves which he caused to be baked in this manner weighed 25 ounces, and each of the citizens received one of these loaves daily. Succeeding emperors increased their weight to thirty-six ounces; and under Theodore they were made of six ounces each, six of which were given instead of a large one as formerly, so that the allowance to the people continued the same. From their round shape, these loaves were sometimes called *coronæ*, crowns. This bread was likewise called *panis fiscalis*, because it was paid out of the treasury; and *panis dispensatorius et gradilis*, either because it was distributed from an elevated place, or because the people were ranged on the steps of the amphitheatre, or on steps raised on purpose in the market-place at Rome, as Constantine the Great caused to be done at Constantinople. 3. *Clibanites*, bread baked in an oven, by way of contradistinction to the, 4. *Subcineritius*, or *sub cinere coctus*, that baked under the embers, which was sometimes also called *reversatus*, because it was necessary to turn it in baking. There was likewise, 5. The *panis nauticus*, or naval bread, which answered to our sea biscuit, and was called also *bis coctus*, twice baked, whence the modern word biscuit is derived. 6. *Panis madidus*, was a kind of bread which the Romans used as a cosmetic for preserving the freshness of their complexion, and which they put upon their faces in the form of a mask. This bread was made of the flour of beans and the purest wheat. 7. *Panis acidus* was a sour bread acidulated with vinegar. 8. *Panis azymus* was bread without leven, which Celsus has pronounced very good for the stomach. Two entire loaves, which are still preserved, were found in Herculaneum. Each of these loaves is about a palm and a half in diameter, and about five inches thick. They have both eight cuts or lines on the back; that is to say, they are first divided into a cross, the four parts of which are intersected by other lines. The ancient Greeks marked their loaves in the same manner, and hence they are called by Hesiod οκτάβλωμοι, with eight lines, but sometimes the loaves were divided only in the form of a cross, and they were then denominated *quadra*, a square, and among the Greeks τέτρατρυφος, divided into four pieces. Hence the phrase, *aliena vivere quadra*, to live at another's table. The reason of marking them in this mannner, seems to have been that they might be the more easily broken and divided.

The French, who particularly excel in the art of baking, have a great many different kinds of bread. Their *pain bis*, or brown bread, is the coarsest kind labour; *panis curialis*, or court bread, allowed by the lord for the maintenance of his household; and eleemosynary bread, distributed as alms to the poor.

We have hitherto considered bread as made of the flour of wheat; but there are many other farinaceous vegetables, from the seeds or roots of which salutary and pleasant bread can be prepared. Oaten bread is common not only throughout Scotland, but likewise in Lancashire, and several of the northern counties of England. In this country we have likewise excellent bread made of barley meal; and pease bread, which, though much relished by many of our peasantry, is dry, heavy, and hard of digestion. In times of scarcity, many attempts have been made to compensate for the want of corn, by the substitution of other vegetable substances, in the fabrication of bread. For this purpose, recourse has been had to the herb *ragwort*, the thick root of which, when taken out of the ground, is soft and viscous, but becomes hard in a short time, and may be preserved in that state for years, without changing, or requiring the slightest care. This root is easily ground, and yields a fine flower, which has an agreeable taste resembling that of a nut. It is said likewise to be easily digested, and to be more nutritive and exhilarating than wheaten bread. The same properties and effects are attributed to radishes. From the acorn, too, a kind of meal is produced which makes excellent bread, provided that a little barley meal be mingled with it, to counteract its astringent qualities. In the wars of Westphalia, bread of this description was very commonly used; and when made with milk, was extremely pleasant and nutritious. The slightest preparation is sufficient to remove the harsh and disagreeable taste which the acorn has in its natural state. Roasting or boiling it is all that is requisite to render it quite palatable. This kind of bread has been recommended by physicians, especially for labouring people: the acorns that are best calculated for this purpose are those of the white oak. M. Parmentier, chief apothecary in the Hotel des Invalides, has published some beautiful and successful experiments on the vegetables which might be substituted in times of scarcity, for those usually employed for the nourishment of animals. Upon examining, with the most careful attention, what was the nutritive part of farinaceous vegetables, he discovered that it was their starch; and by a series of well conducted experiments, he ascertained the identity of the farina of plants with the starch of wheat. The vegetables from which he extracted this substance, are the bryony, the iris, gladiolus, ranunculus, fumaria, arum, dracunculus, mandragora, colchicum, filipendula, and helleborus, and the roots of the gramen caninum arvense. The process by which he extracted the farina or starch from these vegetables, is extremely simple. It is only necessary to cleanse the roots, to scrape and pound them, and then to soak the pulp in a considerable quantity of water: a white sediment is deposited, which, when washed and dried, is a real starch. M. Parmentier converted these different starches into bread, by mingling them with an equal portion of potatoes reduced into pulp, and the ordinary dose of wheaten leaven: the bread had no bad taste, and its quality was excellent. From his experiments it appeared, that it is chiefly the amylaceous matter or starch of grain that is nutritious; and that the nutritive quality of other vegetable substances, depends entirely on the quantity of that matter they contain. This amylaceous matter, formed into a jelly, and diffused in water, will keep a long time without undergoing any change. At length, however, it becomes arid, and then putrifies.

A very good bread may be made of turnips by the following process: Let the turnips be washed clean, pared, and boiled. When they are soft enough for being mashed, the greater part of the water should be pressed out of them, and they should then be mixed with an equal quantity in weight of coarse wheat flour. The dough may then be made in the usual manner, with yeast or barm, salt, water, &c. It will rise well in the trough, and after being well kneaded, may be formed into loaves, and put into the oven. It requires to be baked rather longer than ordinary bread, and when taken from the oven is equally light and white, rather sweeter, with a slight but not disagreeable taste of the turnip. After it has been allowed to stand 12 hours, this taste is scarcely perceptible, and the smell has quite gone. After an interval of 24 hours, it cannot be known that it has turnips in its composition, although it has still a peculiar sweetish taste: it appears to be rather superior to bread made only of wheat flour, is fresher and moister, and even after a week continues very good.

Bread is sometimes made of millet, and, when warm, it is pretty good; when cold, it becomes dry, and easily crumbles, and is therefore preferred by painters for effacing their pencil marks. Though millet be nutritive when boiled, it is not so in bread, but becomes a very powerful astringent. From some passages in Pliny, it appears that this grain was in very common use among the Italian peasantry. There is no grain, he informs us, more heavy, or which swells more in baking. It affords the best leaven known, and would, doubtless, make excellent beer.

Rice, though one of the roughest and driest of farinaceous vegetables, is converted by the Americans into a very pleasant bread. The process is as follows: The grain is first washed by pouring water upon it, then stirring it, and changing the water until it be sufficiently cleansed. The water is then drawn off, and the rice, after being sufficiently drained, is put, while yet damp, into a mortar, and beaten to powder; it is then completely dried, and passed through a common hair sieve. The flour, thus obtained, is generally kneaded with a small proportion of Indian corn-meal, and boiled into a thickish consistence; or sometimes it is mixed with boiled potatoes, and a small quantity of leaven and salt is added to the mass. When it has fermented sufficiently, the dough is put into pans, and placed in an oven. The bread made by this process is light and wholesome, pleasing to the eye, and agreeable to the taste. But rice flour will make excellent bread, without the addition of either potatoes, or any kind of meal. Let a sufficient quantity of the flour be put into a kneading trough; and at the same time let a due proportion of water be boiled in a cauldron, into which throw a few handfuls of rice in grain, and boil it till it break. This forms a thick and viscous substance, which is poured upon the flour, and the whole is

Bread.

kneaded with a mixture of salt and leven: the dough is then covered with warm cloths, and left to rise. In the process of fermentation, this dough, firm at first, becomes liquid as soup, and seems quite incapable of being wrought by the hand. To obviate this inconvenience, the oven is heated while the dough is rising; and when it has attained a proper temperature, a tinned box is taken, furnished with a handle long enough to reach to the end of the oven: a little water is poured into this box, which is then filled with dough, and covered with cabbage leaves and a leaf of paper. The box is then committed to the oven, and suddenly reversed. The heat of the oven prevents the dough from spreading, and keeps it in the form which the box has given it. This bread is both beautiful and good; but when it becomes a little stale, loses much of its excellence.

Potatoes, mixed in various quantities with flour, make a wholesome, nutritive, and pleasant bread. Various methods are employed for preparing the potatoes. Kliyogg, who has been stiled the rustic Socrates, recommends, that potatoes well boiled and carefully peeled, should be put into a kneading trough, covered with boiling water, and bruised till they be converted into a kind of soup of equal consistence throughout. A half, a third, or a fourth, of this soup, mixed with the flour of wheat, makes a bread of an excellent taste, and extremely salutary and nutritive. This is the food of the peasantry in German Lorraine; and that country is thickly peopled, with young, tall, and handsome men, of the most robust and vigorous constitution. In Vogstand and in Saxony, potatoes are prepared for bread in the following manner: The largest potatoes are chosen, and, after being peeled, are grated very fine, and put into a milk pail. Cold water is poured upon them, in which they are allowed to remain twenty-four hours. The water is then poured off, and fresh water is poured on them again; and this is repeated till the water which is drawn off be as pure as that taken from the spring. The potatoes are then put into a white linen cloth in order to be drained, after which they are spread upon a plate till dry. They are then reduced to a fine powder, and mixed with equal portions of wheaten flour, and with as much leven as is usually employed for the same quantity of flour.

Bread may be made from the meal of potatoes alone, with the addition of salt or yeast; but it is heavy, brown, and apt to crumble into powder. To render it more adhesive, M. Parmentier mixed with the meal a decoction of bran, or a mixture of honey and water, either of which made it lighter, better coloured, well tasted, and sufficiently firm. He obtained also, well fermented bread, of a good colour and taste, from a mixture of raw potatoe pulp, with meal of wheat, or potatoe meal, with the addition of yeast and salt. After repeated trials, he recommends the mixture of potatoes, in time of scarcity, with the flour of wheat, in preference to rye, barley, or oats; when no grain can be procured, he recommends the use of bread made from a mixture of the amylaceous powder of potatoes and their pulp, fermented with leven or honey. The meal of potatoes, diluted with water, acquires a tenacious and gluey consistence. Bread, however, made of this meal, with the flour of wheat, has a grey colour; but that made of a mixture of the pulp of potatoes, with the flour of wheat, is sufficiently white. Parmentier made bread very much resembling that of wheat, by mixing four ounces of amylaceous powder of potatoes, one dram of mucilage extracted from barley, one dram of the bran of rye, and one-half dram of glutinous matter, dried and pounded into powder.

M. Duduit de Maizieres, a French officer of the king's household, invented and practised with the greatest success, a method of making bread of common apples, very far superior to potatoe bread. After having boiled one third of peeled apples, he bruised them, while quite warm, into two-thirds of flour, including the proper quantity of leven, and kneaded the whole without water, the juice of the fruit being quite sufficient. When this mixture had acquired the consistency of paste, he put it into a vessel, in which he allowed it to rise for about twelve hours. By this process he obtained a very sweet bread, full of eyes, and extremely light.

The Norwegians make bread of barley and oatmeal, baked between two stones. This bread improves with age, and may be kept thirty or forty years. At their great festivals they use the oldest bread; and it is not unusual, at the baptism of a child, to have bread which had been baked at the baptism of the grandfather.

At Debretzin, in Hungary, excellent bread is made by the following process, without yeast: Two large handfuls of hops are boiled in four quarts of water: this is poured upon as much wheaten bran as it will moisten, and to this are added four or five pounds of leven. When the mass is warm, the several ingredients are worked together till well mixed. It is then deposited in a warm place for 24 hours, and afterwards divided into small pieces, about the size of a hen's egg, which are dried by being placed upon a board, and exposed to a dry air, but not to the sun; when dry, they are laid up for use, and may be kept half a year. The ferment, thus prepared, is applied in the following manner: For baking six large loaves, six good handfuls of these balls are dissolved in seven or eight quarts of warm water; this water is poured through a sieve into one end of the bread trough, and after it three quarts of warm water; the remaining mass being well pressed out. The liquor is mixed up with flour, sufficient to form a mass of the size of a large loaf; this is strewed over with flour: the sieve, with its contents, is put upon it, and the whole is covered up warm, and left till it has risen enough, and its surface has begun to crack: this forms the leven. Fifteen quarts of warm water, in which six handfuls of salt have been dissolved, are then poured upon it through the sieve; the necessary quantity of flour is added, and mixed and kneaded with the leaven: this is covered up warm, and left for about half an hour. It is then formed into loaves, which are kept for another half-hour in a warm room; and after that they are put into the oven, where they remain two or three hours, according to their size. One great advantage attends this kind of ferment, that it may be made in large quantities at a time, and kept for use; and, on this account, it might be convenient on board of ships, or in camps for armies in the field.

In the absence of any of the farinaceous vegetables which we have mentioned, various substitutes for bread have been employed in different parts of the world. By far the most valuable of these substitutes is the fruit of the bread tree, which is so common in many parts of the East, particularly at Surinam, that extensive alleys may be seen of this tree alone, loaded with the most luxuriant crops of fruit. As this tree is to be described in a separate article, we forbear entering into any minute account of it at present, or of the manner in which it is prepared. See BREAD *Fruit Tree*. In Iceland, Lapland, Crim Tartary, and various parts in the north, a kind of bread is made of dried fish, beaten first into powder, and then made up into cakes. But the strangest substitute for corn that has ever been employed, is a sort of white earth, found in the lordship of Moscow, in upper Lusatia, of which the poor, in times of famine, have frequently been compelled to make bread. This earth is dug out of a hill where saltpetre had formerly been worked: when heated by the sun it cracks, and small globules proceed from it like meal, which ferment when mixed with flour. On this earth, baked into bread, many persons have subsisted for a considerable time. A similar earth is found near Geronne in Calatonia.

In the western parts of Louisiana, too, the savage inhabitants have a strange custom of eating a white earth or clay with salt. This custom they seem to have borrowed from the example of the wild cattle, goats, and even turkies, which eat earth of a similar description in the salt-pits of that country. The rowers, too, who ply on the river Mississippi, frequently drink such quantities of muddy water, as cannot fail to leave in their stomach a considerable residuum of earth. These facts suggested to M. Buchoz, that an European might, without danger, imitate, in this respect, the example of the Americans. To put this idea to the test of experiment, he ate a large piece of clay, kneaded with a little brine. He found it rather unpleasant to the taste, but followed by no bad consequences. He tried to render it pleasanter and more nutritious. The result of his experiments was, that gum-water, glue, the fresh juice of fruits, the paste and the decoction of the roots of marsh-mallows, succeeded equally well in forming, with this clay, a good and very nutritive bread. "I doubt not," continues he, "that, with the aid of a little leaven, and long trituration, a mineral bread might be made, which would prove the greatest resource in time of famine." It is difficult to believe that any kind of earth can be a nutritive food; yet, it is certain, that several nations, and particularly the negroes, are accustomed to eat some species of earths found in their country, the want of which, when absent from home, they bitterly regret. It seems probable, however, that they employ these earths, not as aliments, but merely as tonics, to rectify the stomach, and to restore its powers. The continued use of it, even for a short time, would, in all probability, be deleterious.

Of the alimentary qualities of different kinds of bread.

What kind of bread is the most nutritive and wholesome, is a question which has occasioned much discussion among physicians. The whole tribe of *cerealia*, that is, of the gramineous or culmiferous plants employed as the food of men, contain a farinaceous substance of a similar nature. Different species of these cerealia are employed in different countries, with nearly the same benefit, according to the facility of cultivating them in certain soils and climates. There is, however, some difference in the qualities of the cerealia, which deserves to be mentioned. *Barley*, which contains in its farina a smaller proportion of oil than some other grains, is found, accordingly, to be less nourishing. This is ascertained by the experience of our peasantry, as well as by experiments upon brutes, which are not found to derive equal nourishment from the same quantity of barley as of oats. *Rye*, which, on being decocted in water, yields three-fourths of its weight of mucilage, may be presumed to be sufficiently nourishing. Water, when triturated with it, acquires no milkiness, which shews that its oil is at least under a peculiar combination; and if it really contains a due portion of oil, it is difficult to explain why it should be, of all the cerealia, the most acescent. These peculiarities might seem to detract from its nourishing quality, were not this sufficiently established by the experience of all the northern nations on the continent. With us it is little employed as an aliment; and people unaccustomed to it generally find it laxative. *Rice* is proven, by the experience of all Asia, to be sufficiently nourishing; nor does its nutritious matter seem to be attended with any noxious quality. "It has been supposed," says Dr Cullen, "among physicians, to be possessed of some drying or astringent quality, and has therefore been commonly employed in diarrhœa and dysentery, preferably to the other farinacea: but this opinion I take to be groundless; for it does not give any mark of astringent quality with the vitriol of iron; and if it has ever been found useful in diarrhœa, it must, as Spielmann properly judges, be owing entirely to its demulcent power; which, however, is not stronger in it, than in several others of the farinacea." *Oats* are used by many people in the north of Europe as a farinaceous food, but particularly by the people of Scotland, and its nutritive qualities are sufficiently known. Various, and indeed contrary, mistakes, however, have been formed concerning it. The French suppose it to be refrigerant, but it is merely so as being a vegetable aliment not heating. The English vulgar, from its tendency to produce a slight heartburn, have supposed it to be heating; and, from a mistake with regard to the state of diseases, have imagined it the cause of cutaneous affections, not more frequent in Scotland than in other countries. The heat at the stomach is owing to the acescency which oat bread, commonly unfermented, is apt to occasion; and, unfermented bread of wheat meal is liable to give the same heartburn and sense of heat at stomach. *Maize*, which is entirely an American grain, affords a farina of the best quality, and extremely nourishing both to men and brutes. By itself, or even with yeast, it does not ferment so well as to give a light bread; but it may be made into a very perfect bread, by being mixed, in pretty large proportions, to the flour of wheat. All these farinaceous substances which we have mentioned, may be made indeed into bread; but in many cases the bread so prepared is less dry and friable, less miscible therefore with the saliva and with our other food, and perhaps less wholesome than might be desired. Acescent fermentation is the only effectual means of correcting these imperfections. It drives off a large quantity of the fixed air; but as a portion of it still remains diffused, the mass is swelled into a larger bulk; and, when heat is applied, the bread formed is of a more spongy texture, more tender, friable, and more miscible with the saliva and our other food. Complete fermentation, however, cannot be given to any of the farina except wheat, of which alone, therefore, by its own spontaneous fermentation, the most perfect bread can be formed. When the discovery of the circulation of the blood led physicians to consider obstruction as a principal cause of disease, they were ready, at the same time, to suppose a certain state of the fluids to be the chief cause of obstruction. Dr Boerhaave has given the *glutinosum pingue* as one of the simple diseases of the fluids; the first cause of which he ascribes to the use of unfermented farinacea. "In entering upon the consideration of this," says Dr Cullen, "we are willing to own, that a farinaceous substance, formed by fermentation into a perfect bread, is the most wholesome condition in which farinaceous substances can be employed as a part of our food; and we are also ready to allow, that the unfermented farinacea, taken in immoderate quantity, especially at a certain period of life, or in dyspeptic stomachs, may be the cause of disease: but all this seems to have been exaggerated; for the morbid effects of unfermented farinacea are truly rare occurrences; and, indeed, the same unfermented farinacea are, for the most part, very well suited to the human economy. However considerable the use of fermented bread may be, the use of unfermented farinacea is still very great and considerable amongst almost every people of the earth. The whole people of Asia live upon unfermented rice; and I believe the Americans, before they became acquainted with the Europeans, employed, and for the most part still employ, their maize in the same condition. Even in Europe, the employment of unfermented bread, and of unfermented farinacea in other shapes, is still very considerable; and we are ready to maintain, that the morbid consequences of such diet are very seldom to be observed. In Scotland, nine-tenths of the lower class of people, and that is the greater part of the whole, live upon unfermented bread, and unfermented farinacea in other forms, and at the same time I am of opinion, that there are not a more healthy people any where to be found. In the course of fifty years that I have practised physic amongst them, I have had occasion to know this; and have hardly met with a disease of any consequence that I could impute to the use of unfermented farinacea. Physicians, who represent these as a noxious matter, must at the same time acknowledge, that in every country in Europe it is often used with perfect impunity. To obviate, however, the conclusion I would draw from this fact, they allege that it is only safe when used by robust and labouring people; but we give it in this country, not only to the farmer's labouring servants, but to our sedentary tradesmen, to our women, and to our children; and all of the latter live and grow up in good health, except a very few dyspeptics, who are not free of complaints, which those also are liable to who live on fermented wheaten bread.

From these considerations, it will appear, that a great deal too much has been said of the noxious effects of unfermented farinacea. It will surprise modern physicians to find, that Celsus (who, like other ancients, can hardly be in the wrong) should say, that unfermented bread is more wholesome than fermented bread. I am ready to allow that he was in the wrong; but I am disposed to suspect, that it happened from his observing that the lower people, who lived on the unfermented, were generally more healthy than those of the better sort, who lived upon fermented bread." (*k*)

Since the preceding observations were drawn up, we have met with the following new theory of the fermentation which takes place in bread, by M. Duportal, professor of physic and chemistry in the academy of Montpellier, which we shall give in his own words:

"The making of bread is a domestic chemical operation, since in it those substances which are the most essential to the sustenance of man undergo a change in their nature. These substances are found united in the meal of the farinaceous seeds, especially in those of wheat, which furnishes the best bread. M. Chaptal has found this latter farina to consist of starch, gluten, mucilage, and sugar. We may add to them the ferment, the vegetable albumen, calcareous phosphate, &c. which must be reckoned in the number of materials which compose it. What share has each of these principles in carrying on the pannary fermentation? It is generally believed, that the farina being reduced into a paste, the mucous saccharine principle undergoes the vinous fermentation; that the starch has a tendency to become acid; and that the gluten and albumen enter into putrefaction.

I cannot entirely accord with this doctrine. It appears to me to be more correct, to suppose that the ferment, after having converted the sugar of the farina into carbonic acid gas, and into alcohol, changes this into acetic acid; that at the same time the gluten and the albumen are in part decomposed, acetic acid is again produced, some ammonia, and more carbonic acid gas, &c.; and that, the starch uniting with the undecomposed gluten, there results a compound, the further alteration of which is prevented by the action of fire, which combines still more intimately these principles. This theory of the pannary fermentation seems to me to be supported by the following facts:

1st, Those farinæ which are deprived of the fermenting principle, or those which scarcely contain any of it, always afford heavy bread, although the muco-saccharine principle forms a part of them; for this substance not being a fermentable principle, it cannot ferment of itself, although it does so by means of a ferment. Thus, it is customary to add to the dough a leaven taken from bread already fermented, or the yeast of beer, as is the practice in Paris.

2d, Dough is always acid, notwithstanding that the volatile alkali formed in the operation neutralizes

Bread Fruit.

one part of the acetic acid, as is proved by the ammoniacal odour of dough treated by potass. Bread itself always contains a little of this acid, which heightens the flavour of it.

3d, The starch, the undecomposed gluten, and the other materials of the dough, are so intimately united by the baking, that it is no longer possible to separate them. We can discover by the distillation of bread an animal matter, for it forms ammoniacal acetite; but a less quantity of this is obtained from it than of farina, according to the observation of M. Vauquelin.

4th, The formation of carbonic acid gas is rendered evident by the volume which the dough acquires, and by the numerous cavities which are seen in it. This gas escaping while the bread is baking, dilates the mass still more, which causes the air to lodge in those cavities: an important circumstance; whence results, say they, the remarkable whiteness of bread, full of little holes, so light, delicate, and sapid, in comparison with the bread destitute of them, which is heavy, compact, and of a disagreeable taste. It is, therefore, more particularly the *ferment* which has the most active share in producing pannification. Added to dough in small quantity, the operation is slow and incomplete; in too large proportion, the fermentation goes on so rapidly, that it becomes necessary to check it. In this last case, M. Chaptal proposes to knead some carbonate of potass with the dough, which will neutralize the excess of acetic acid. Our good housewives content themselves with uncovering the dough, dividing it, and exposing it to the air, in order to diminish the temperature of the fermenting mass; and this management sometimes succeeds." See Chaptal's *Nouveau Cours Complet d'Agriculture;* and the *Annales de Chimie* 1810.

BREAD FRUIT (*Artocarpus incisa*). This fruit is the produce of a species of the genus *Artocarpus*, which grows abundantly in the South Sea islands. There are several species, which are noticed in the article BOTANY, and to which we refer, as our present object is limited.

The characters of the bread-fruit tree are the following:

Class, MONŒCIA.
Order, *Monandria*.

Catkin cylindrical—gradually enlarging—covered with flowers.
Male. Calyx two-valved. No corolla.
Female. No calyx. No corolla. One style.
Drupe. Multilocular.

Thunberg mentions several subspecies of the *artocarpus incisa;* but the information which he has afforded is crude and imperfect. The natives of the Society Islands, according to the narrative with which Admiral Bligh has favoured the public, reckon eight species; though the correctness of their division does not appear quite evident. The species and names are as follow:

1. Patteah.
2. Eroroo.
3. Awanna.
4. Mire.
5. Oree.
6. Powerro.
7. Appeere.
8. Rowdeeah.

The differences are said to consist chiefly in the leaves, and are very trifling. The eighth species has a large broad leaf, without any notches; while those of all the other species are more or less notched. It may be a variety; but we are not aware of any sufficiently accurate observations which might enable us to decide this point.

The fruit of the Patteah differs from that of the Rowdeeah; the former is oblong, while the latter is round, and not above half of the size of the other.

All the species of the *Artocarpus* are natives of the South Sea islands, and have long attracted the notice of voyagers. So long ago as in 1688, when Dampier performed his voyage round the world, the species which we have described was noticed, and the following description given of it:

"The bread-fruit (as we call it) grows on a large tree, as big and high as our largest apple trees; it hath a spreading head, full of branches, and dark leaves. The fruit grows on the boughs like apples: it is as big as a penny loaf when wheat is at five shillings the bushel; it is of a round shape, and hath a thick tough rind. When the fruit is ripe, it is yellow and soft, and the taste is sweet and pleasant. The natives of Guam use it for bread. They gather it when full grown, while it is green and hard; then they bake it in an oven, which scorcheth the rind and maketh it black; but they scrape off the outside black crust, and there remains a tender thin crust; and the inside is soft, tender, and white, like the crumb of a penny loaf. There is *neither seed nor stone* in the inside, but all of a pure substance, like bread. It must be eaten new; for, if it be kept above twenty-four hours, it grows harsh and choaky; but it is very pleasant before it is too stale. This fruit lasts in season *eight months* in the year, during which the natives eat no other sort of bread kind. I did never see of this fruit any where but here. The natives told us, that there is plenty of this fruit growing on the rest of the Ladrone Islands; and I did never hear of it any where else."

The most satisfactory accounts which we have met with, both of the tree and of the fruit, are those given by Hawkesworth, in his account of the first voyage of Captain Cook, and that of our illustrious Circumnavigator himself, in his account of his last voyage. We shall therefore extract both, for the satisfaction of our readers.

"The bread fruit grows on a tree that is about the size of a middling oak. Its leaves are frequently a foot and a half long, of an oblong shape, deeply sinuated like those of the fig tree, which they resemble in consistence and colour, and in the exuding of a white milky juice upon being broken. The fruit is about the size and shape of a child's head, and the surface is reticulated not much unlike a trufle. It is covered with a thin skin, and has a core about as big as the handle of a small knife. The eatable part lies between the skin and the core. It is as white as snow, and somewhat of the consistence of new bread.

It must be roasted before it is eaten, being first divided into three or four parts. Its taste is insipid, with a slight sweetness somewhat resembling that of the crumb of wheaten bread, mixed with a Jerusalem artichoke." Dr Hawkesworth, in another part, gives a very flattering picture of the advantages resulting from the bread fruit tree, which, as will appear, is rather fanciful than correct. He says, "Of the many vegetables that have been mentioned already, as serving them (the natives of the Society Islands) for food, the principal is the bread fruit, to procure which, costs them no trouble or labour but to climb a tree. The tree which produces it, does not indeed shoot up spontaneously; but, if a man plants ten of them in his lifetime, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the natives of our less temperate climate can do by ploughing in the cold winter, and reaping in the summer's heat, as often as these seasons return. Even if, after he has procured bread for his present household, he should convert the surplus into money, and lay it up for his children.

"It is true, indeed, that the bread fruit is not always in season; but cocoa nuts, bananas, plantains, and a great variety of other fruits, supply the deficiency."

Of a tree, respecting which so much has been said, it is very interesting to know every circumstance connected with the cultivation; and Captain Cook, whose enterprising mind lost nothing worthy of record, made some valuable observations, which will be most satisfactorily exhibited in his own words. "I have enquired very carefully," says Captain Cook, "into their manner of cultivating the bread fruit tree at Otaheite; but was always answered, that they never planted it. This, indeed, must be evident to every one who will examine the places where the young trees come up. It will be always observed, that they spring from the roots of the old ones, which run along near the surface of the ground; so that the bread fruit trees may be reckoned those that would naturally cover the plains, even supposing that the island was not inhabited, in the same manner that the white barked trees found at Van Diemen's Land, constitute the forests there. And from this we may observe, that the inhabitant of Otaheite, instead of being obliged to plant his bread, will rather be under the necessity of preventing its progress, which I suppose is sometimes done, to give room for trees of another sort, to afford him some variety in his food."

Captain King, in his valuable work, notes a singular fact, that the bread fruit tree does not thrive, in point of number, so well in the Sandwich islands as in the plains of Otaheite, but that they produce double the quantity of fruit. The trees, too, in the former, are of the same size with those in the latter; but differ in having their branches striking out much lower.

Admiral Bligh remarked, that the inhabitants of Otaheite take up the young shoots from the parent root, with best success after wet weather, when the earth forms balls around the roots. The plants so removed, are not then liable to suffer.

Bread Fruit.

It will not be uninteresting to give some account of the attempts made by Europeans to cultivate the bread fruit tree for economical purposes. As far as we know, the attempts have originated in this country, and have been made by Englishmen. An interesting narrative of the voyage, made for the purpose of conveying plants of this fruit, as well as of other fruit trees, to the West India colonies, has been long given to the public, by the gentleman who commanded both of the expeditions that have been sent out to the South Seas. We shall give a correct outline of that narrative, as well as an abstract of Admiral Bligh's MS. narrative of his last voyage, with which he has, with the utmost politeness and kindness, furnished us.

In consequence of the urgent applications of many West Indian merchants and proprietors, his Majesty determined on sending out an expedition to the South Sea islands, from which plants of the bread fruit tree were to be conveyed to our West Indian settlements. This was the first voyage undertaken to that part of the world with a view to advantage,—those that had preceded it, having been directed rather to discovery, than to immediate benefit.

A ship named the Bounty, was fitted up for the voyage, and, on the 16th of August 1787, Lieutenant (now Admiral) Bligh, who had accompanied Captain Cook in his last voyage, was appointed to command her. The character of this officer is now so well known, by his daring zeal in the public service, that it becomes scarcely necessary to remark on the extreme propriety of the selection which was made. The crew consisted of forty-four officers, petty officers, and seamen; besides, "two skilful and careful men were appointed, at Sir Joseph Banks' recommendation, to have the management of the plants intended to be brought home: the one, David Nelson, who had been on similar employment in Captain Cook's last voyage; the other, William Brown, as an assistant to him." The whole number of men on board of the Bounty amounted to forty-six. "The burthen of the Bounty was nearly 215 tons; her extreme length on deck ninety feet ten inches; extreme breadth twenty-four feet three inches; and height in the hold, under the beams at the main hatchway, ten feet three inches. In the cock pit, were the cabins of the surgeon, gunner, botanist, and clerk, with a steward's room, and store-rooms. The between decks was divided in the following manner: The great cabin was appropriated for the preservation of the plants, and extended as far forward as the after hatchway. It had two large sky-lights, and on each side three scuttles for air, and was fitted with a false floor, cut full of holes, to contain the garden pots in which the plants were to be brought home. The deck was covered with lead, and, at the foremost corners of the cabin, were fixed pipes, to carry off the water that was drained from the plants, into tubs placed below, to save it for future use." Being thus completely fitted up for carrying the design of the expedition into complete effect, Lieutenant Bligh, after having been baffled by contrary winds for nearly a month, at length sailed on his memorable voyage on the 23d of December, 1787. The instructions from the admiralty were full and satisfactory, and detailed with care, all the objects to which the voyagers were especially to direct their attention.

By these instructions, Mr Bligh was particularly enjoined to proceed to the Society Islands, " where, according to the accounts given by the late Captain Cook, and persons who accompanied him during his voyages, the bread fruit tree is to be found in its most luxuriant state."

Lieutenant Bligh directed his course to the island of Teneriffe, whence he sailed for Cape Horn; off this he encountered such boisterous weather, that he bore away for the Cape of Good Hope. From the Cape he proceeded to Van Diemen's Land, and last of all to the island of Otaheite, where he arrived on the 25th of October, 1788.

The Bounty remained at Otaheite until the 3d of April 1789, at which place the number of bread fruit plants was completed. The number amounted to 1015, and they were contained in 774 pots, 39 tubs, and 24 boxes. Lieut. Bligh sailed from Otaheite on the 4th of April, and having passed through the Society Islands, and visited some of the Friendly Islands, the voyage promised every success, until the 28th of March 1789, when a conspiracy, which had been planned with infinite caution, was carried into effect, and the whole of Lieut. Bligh's exertions were blasted for a season.

" Until the day of the mutiny," says that gentleman in his narrative, " the voyage had advanced in a course of uninterrupted prosperity, and had been attended with many circumstances equally pleasing and satisfactory. A very different scene was now to be experienced. A conspiracy had been formed, which was to render all our past labour productive only of extreme misery and distress. The means had been concerted, and prepared with so much secrecy and circumspection, that no one circumstance appeared to occasion the smallest suspicion of the impending calamity."

Early on the morning of the 28th of April 1789, Lieutenant Bligh was seized, when asleep in his cabin, by a party of armed mutineers, and forced on deck in his shirt, with his hands tied with a cord behind his back. On arriving upon deck, he found, that such of the officers (the master, the gunner, the surgeon, one of the master's mates, and Nelson the botanist) as had maintained their allegiance, were confined in the fore hatchway, and were guarded by centinels. The launch was hoisted, and the designs of the mutineers were then evident. Particular individuals were ordered into the boat; and those that hesitated were forced to comply. Their commander was compelled to accompany them. Eighteen of Lieutenant Bligh's crew remained faithful to their duty. Among these, particular praise is due to Mr Samuel, (the clerk of the commander,) for his very meritorious exertions in securing Mr Bligh's journals, commission, and some valuable ship-papers. His attempts to carry off the time-keeper, with a box containing the lieutenant's surveys, drawings, and remarks, for fifteen years, were frustrated. Four of the crew were detained by the mutineers, in opposition to their own wishes.

Mr Bligh and his unfortunate party, with 150lbs. of bread, a small quantity of wine and rum, a few pieces of pork, a quadrant and compass, with a few other materials necessary for navigation, were cast adrift on the open ocean, by the unfeeling mutineers. The ringleader of this mutiny appears to have been a Mr Christian, the master's mate; and his associates were two midshipmen, some petty officers, and about fourteen seamen, making altogether twenty five men. It may be difficult to develope the motives of their extraordinary conduct; and as the transaction has for a long time been nearly forgotten, it is not necessary to wound the feelings of those who may have the misfortune to be connected with men capable of forgetting their duty to their king and country so completely as Mr Christian and his associates appear to have done.

After having encountered no less danger from the elements than from the treachery of the savage inhabitants of the island of Tofoa, one of the Friendly Islands, this band of determined heroes reached New Holland, where they refreshed themselves by rest, and obtained some supplies of food. From New Holland they proceeded across the ocean, and on the 14th of June 1789, after having encountered famine, and exposure to the inclemency of the elements, they arrived at the Dutch settlement of Coupang, in the island of Timor, after having traversed the open ocean for more than 1200 leagues, in an open boat, without the loss of a single individual by disease. The reception which those unfortunate people met with from the Dutch government, was gratifying in the last degree; and the benevolent attention shewn them, enabled twelve to return to their native land. Lieutenant Bligh arrived in England on the 14th of March 1790. During this most perilous voyage many valuable observations were made, and have been recorded by Admiral Bligh in his narrative. They are worthy of attention; but, as they are not connected with the subject of this article, we must refer to the original work itself.

Thus, for a time, the benevolent wishes of the king were disappointed, by those, whose most anxious desire should have been to promote such praise-worthy efforts by every means in their power.

But although the infamous mutiny of Mr Bligh's crew had entirely frustrated the designs of his majesty, in sending out the Bounty, yet it did not lessen the zeal for benefiting his people, which had first suggested the plan; and, accordingly we find, that, as soon as circumstances permitted, a new expedition was set on foot under the auspices of the same commander, whose own account, furnished with the utmost liberality from his MS. journal, we beg leave to lay before our readers: it will convey clearer ideas of the voyage than can be afforded by any other means.

" Captain Bligh sailed from England in command of his majesty's ship Providence, with a small vessel to attend him, called the Assistant, on the 3d of August 1791, to proceed to Otaheite in the South

Sea, and from thence to bring the bread-fruit plant to the West Indies, and such others as might be found of rarity or use. On his return, it was left for him to explore the passage between New Holland and New Guinea; a passage which no mariner had dared to attempt before the Captain's voyage in the Bounty, which has been already narrated. All this was accomplished.

On the 28th August 1791, Captain Bligh anchored, with his tender, in St Cruz road at the island of Teneriffe, and having taken in wine and refreshments, he sailed from thence on the 1st September; after having touched at the island of St Jago, he proceeded to the Cape of Good Hope, and anchored in Table Bay on the 6th November.

The vessels remained at the Cape until the 23d December 1791, when they sailed for Van Diemen's Land, which they reached on the 9th February 1792. Having sailed on the 24th of the same month, they arrived on the 9th of April in Matavai Bay in the island of Otaheite.

At this place they remained, and the crews were zealously employed in collecting the bread-fruit plants, which were stowed in the great cabin of the Providence, which had been previously prepared for their reception. All were got on board by the 17th July, and they sailed the following day, with 1281 pots and tubs of plants, in the finest condition.

After a most dangerous passage through the straits which separate New Holland from New Guinea, Captain Bligh anchored at Coupang in the island of Timor, on the 2d October, where he remained, replacing such plants as had died with others of that island, until the 10th of the same month, when he sailed by the Cape of Good Hope, which he passed, without having the thermometer lower than 61° Fahrenheit, or going farther south than 37° 46′ south latitude.

On the 17th December, he anchored at St Helena; there 57 kinds of fruit trees were collected, and that the settlement might be benefited by those he had on board, Captain Bligh gave to the government 23 bread fruit plants, besides some other valuable fruit trees.

Captain Bligh now proceeded to the island of St Vincent, and arrived in Kingston Bay on the 23d January 1793; there he remained until the 23d instant, when, having left under the care of Dr Anderson, the well-known superintendant of the botanical garden in that colony, 333 bread fruit trees, and 211 fruit trees; and having received 467 plants for his Majesty's garden at Kew, he sailed for Jamaica in termination of his orders.

Having executed the duty entrusted to him with the utmost celerity, Captain Bligh arrived at Port Royal, in the island of Jamaica, on the 5th February 1793. There he landed 623 plants, 347 of which were bread fruit. The others consisted of the finest fruit of the East.

To complete all the objects of Captain Bligh's mission, it only remained for him to return to Britain with a selection of plants for the king; and accordingly he accomplished that end, with a great variety of beautiful specimens.

The two vessels sailed from Jamaica on the 14th June 1793, and having left some plants on the Grand Cayman, they arrived in the Downs on the 2d August 1793."

The Providence was 420 tons burthen. The Assistant 110 tons. The former carried 100 men, the latter 27. The Assistant was commanded by Lieutenant Nathaniel Portlock.

From Jamaica and St Vincent's, plants of the bread fruit tree have been introduced into different parts of the British colonies, chiefly by the exertions of public spirited individuals; so that the culture of it has received a very fair trial. It has been said that Dr Anderson of St Vincent has succeeded in raising trees both from cuttings and layers. We know not whether this be the fact or not; but of this we are perfectly assured, that the experiment has been completely unsuccessful in the hands of some intelligent gentlemen, who have made it with much attention, and on whose accuracy we can rely. Fortunately, however, it has been sufficiently ascertained, that there is a simple mode of propagation which very generally answers. It is merely this: One of the branches of the root is bared of earth, and then wounded with a spade; in a short time, a shoot springs up from the wound; after this has occured, and the shoot is sufficiently vigorous to bear removal, the separation is completed; and any accidental connection with fibres, or other useless appendages, is also destroyed. The young plant is then dug up, with a proper quantity of earth, and placed in a hole, in which it soon fixes itself. In about three years, it expands into a full sized tree, which yields fruit in great abundance.

It will naturally be asked, after the vast exertions made by the meritorious and persevering individual, who commanded both expeditions to the South Sea islands, in quest of the bread fruit tree, after the expense incurred, and the benevolent zeal displayed by the Sovereign, for the welfare of his West Indian subjects, and after the high expectations that were at one time excited by the splendid narratives of voyagers, how far the bread fruit tree has succeeded in point of cultivation, as well as in point of utility, as an article of food, on which a large proportion of the West India population could depend? The answer to such inquiries will be unsatisfactory, and such as little accord with the very flattering hopes which were at one period expected to be realized. In those colonies where the plantain tree (*Musa paradisiaca*,) grows readily, the bread fruit tree cannot be introduced with advantage, owing to the greater difficulty of cultivation in the one case than in the other, and to the very decided preference which the negroes give to the plantain. The bread fruit tree, as we have already seen, requires some years to bring it to maturity, the mode of propagation is tedious, and negroes have no great predilection for the fruit. This may arise from want of habit, (which might indeed be overcome,) and from its not furnishing food so palatable as that to which they have been accustomed. The plantain tree, on the contrary, is propagated with wonderful facility, and yields fruit in about fifteen months. Whenever an old plantain walk, (the name given in the colonies to the place allotted to the cultivation of this vegetable,) is to be cleared, which very commonly occurs, the roots are to be had for the mere labour of removal. One root sends up many shoots in regular succession, and this it continues to do for many years. After the first planting of these, the cultivator has no further trouble than to cut down the shoots on which the fruit is fit for use, and these are in their turn regularly replaced by others. Wherever then, a sufficient number have been planted, and due attention paid, in the first instance, to every requisite circumstance, there will always be a regular succession of fruit for many years. Besides these advantages, the fruit of the plaintain tree is the favourite vegetable food of the black population; and it is capable of being dressed in various ways, whether it be pulled in its green or in its ripe state. These circumstances, however, can have only a local influence, as there are situations in which the plantain tree either does not thrive well, or fails altogether. In these, the bread fruit tree is likely to become a very valuable substitute; but whether or not the experiment has been fairly made, we do not know. We are inclined to suspect, that it never has been made on a great scale. There seems to be a melancholy want of experimental activity in the colonies, even on those matters that very deeply concern their interests. Individuals, it is true, have had sufficient foresight, and intellectual vigour, to make attempts at improvement; but as their efforts have been in general unsupported, it is not to be wondered that the results should be limited. This very probably originates in such a complication of causes, that it might be difficult to develope the share which each possesses in their common effect. Whatever they may be, it is of importance to the colonies, that they should be counteracted by powerful and efficient means; and these can only be called into play, by the intelligent and liberal-minded part of the West India community, whose means of observation may be immediately directed to these causes, which being once traced may be obviated. At the same time, those who exert them, may not only render important services to the colonial interest at large, but even benefit themselves as individuals in an eminent degree. Perhaps the establishment of societies, for promoting colonial agriculture, on a plan similar to the various agricultural societies in this country, (whose beneficial influence has been so decidedly experienced in those parts where they have been established,) might conduce to this great end.

London might be a central point, at which a chief society, composed of the colonial proprietors resident in Britain, might hold its meetings. Branches of this great society might be formed in each of the colonies. Premiums should be awarded to those who have carried any new scheme, that promises to be of utility, into effect; and a regular correspondence kept open between the London society and its branches. By such means, and such only, can the whole of the resources of the colonies be called forth; and if once a spirit of improvement and of emulation should arise, the public benefit would be incalculable. And among other advantages, the bread fruit tree would have all the advantages of a full and extended trial.

Even in those colonies into which the bread fruit has not been generally introduced as an article of food, it is used as a delicacy; and whether employed as bread, or in the form of pudding, it is considered highly palatable by the European inhabitants.

When used instead of bread, it is roasted either whole, or cut into three or four pieces.

"Bread fruit is also cooked in an oven, which renders it soft, and something like a boiled potatoe; not quite so farinaceous as a good one, but more so than those of the middling sort."

"Of the bread fruit, the Otaheiteans also make three dishes, by putting either water, or the milk of the cocoa put to it, then beating it to a paste with a stone pestle, and afterwards mixing it with ripe plaintains, bananas, or the sour paste which they call *mahie.*"

"The mahie, which has been mentioned as a succedaneum for ripe bread fruit, before the season for gathering a fresh crop comes on, is thus made."

"The fruit is gathered just before it is perfectly ripe, and being laid in heaps, is closely covered with leaves; in this state, it undergoes a fermentation, and becomes disagreeably sweet. The core (says Dr Hawkesworth) is then taken out entire, which is done by gently pulling the stalk, and the rest of the fruit is thrown into a hole which is dug for that purpose, generally in the houses, and neatly lined in the bottom and sides with grass; the whole is then covered with leaves, and heavy stones laid upon them: in this state, it undergoes a second fermentation, and becomes sour, after which it will suffer no change for many months: it is taken out of the hole as it is wanted for use, and being made into balls, it is wrapped up in leaves and baked. After it is dressed, it will keep five or six weeks. It is eaten both cold and hot, and the natives seldom make a meal without it; though, to us, the taste was as disagreeable as that of a pickled olive generally is the first time it is eaten."

"As the making of this mahie depends, like brewing, upon fermentation; so, like brewing, it sometimes fails, without their being able to ascertain the cause. It is very natural, therefore, that the making it should be connected with superstitious notions and ceremonies. It generally falls to the lot of old women, who will suffer no creature to furnish any thing belonging to it, but those whom they employ as assistants, nor even to go into that part of the house where the operation is carrying on." See Dampier's *Voyage round the World. Account of Captain Cook's Voyage round the World during the years* 1767, 1768, and 1769, by John Hawkesworth, LL.D. *Account of Captain Cook's last Voyage, performed in the years* 1776, 1777, 1778, and 1779. *The Narrative of the latter part of the same Voyage, performed during* 1780, *by Captain King.* "A Voyage to the South Sea, undertaken by command of his Majesty, for the purpose of conveying the Bread Fruit Tree to the West Indies, in his Majesty's ship the Bounty, commanded by Lieutenant William Bligh, including an Account of the Mutiny on board the said Ship; and the subsequent Voyage of part of the Crew in the Ship's Boat from Tofoa, one of the Friendly Islands, to Timor, a Dutch Settlement in the East Indies. (C. M.)

BREASTWORK. See FORTIFICATION, and GUNNERY.

BREBERS, or BEREBBERS. See BARBARY, p. 262.

BRECHIN, one of the royal boroughs of Scotland, in Angus-shire, is delightfully situated on the side of a hill which rises from the north bank of the river Southesk, over which is a good stone bridge adjoining to the town. It lies eight miles west from Montrose harbour, from whence the tide flows within two miles of the bridge.

It was a bishop's see, founded about the year 1150 by David I., surnamed the *Saint*, on account of his extraordinary liberality to the church. Its annual revenue, paid in money and in kind before the Reformation, is said to have amounted to seven hundred pounds; but, after that event, it was diminished to one hundred and fifty pounds, owing to the alienation of its estates by Alexander Campbell, the first Protestant bishop, to his chieftain the Earl of Argyle, by whose interest he had been promoted to that see. Keith, in his description of the religious houses in Scotland, says, "In this bishopric there is great confusion and uncertainty." At the Reformation, an account of the rents and revenues of all ecclesiastical benefices was required to be given in to the privy council of Scotland; and the return sent from the see of Brechin was as follows: "Four hundred and twenty-four pounds seventeen shillings Scotch; one hundred and thirty-eight capons; two hundred and eight fowls; eighteen geese; three barrels of salmon; eleven bolls wheat; fourteen chalders and six bolls bear; twenty-five chalders and five bolls meal; and one chalder and two bolls oats."

The Culdees had a convent here, who afterwards gave way to the Mathurines, or Red Friars. The ruins of the abbey, or convent of red friars, called the college, is still to be seen in the college, or canonry wynd, adjoining to the grammar-school; from which it would appear to have been a large building. Here was also one of those hospitals, which, in the time of Popery, were to be met with in various parts of Scotland; founded for the maintenance of the poor, or the education of youth; and, as being of peculiar benefit to the community, distinguished by the honourable name of *Maisons de Dieu*, or houses of God. It was founded about the year 1256, by William of Brechin, and the south wall is still entire in the upper part of the town.

It is not known by whom the cathedral was built. It is a Gothic pile supported by twelve pillars. The whole length, including the chancel which is demolished, was one hundred and sixty-six feet, and the breadth sixty-one feet. The west end of one of the aisles is entire; the door is Gothic, and the arch consists of many mouldings; it has also a window of curious and beautiful workmanship. A nich in the wall, on which stood a statue of the Virgin Mary, still remains. That part of the cathedral, which escaped the devastation of the reformers, is used as the parish church, and was some years ago fitted up into an elegant and commodious house for public worship. The steeple of the church is a beautiful square tower, one hundred and twenty feet high, with battlements on the top, from which rises a handsome hexagonal spire.

Brechin.

Adjoining to the church stands a round tower, of uncommon elegance, known by the name of *the little steeple*, which is an object of attention and admiration to all strangers. It consists of sixty regular courses of hewn free-stone, laid circularly, and tapering towards the top, which is covered with a spiral roof. In the tower are four windows, facing the four cardinal points; and in the spiral roof are other four windows, placed alternate on the sides, and resting on the top of the tower. The inside is hollow, but has no stair: two good bells are hung in it, which are reached by means of ladders, placed on wooden semicircular floors, each resting on circular abutments within the tower. The inner diameter at the bottom is eight feet; the thickness of the wall, at the same place, is three feet seven inches; height to the roof eighty feet; the octagonal spire twenty-three feet; making the whole height, from the ground to the top of the building, one hundred and three feet. The only other tower similar to this in Scotland, is at Abernethy in Perthshire, (see ABERNETHY,) but its height is only three-fourths of the one now described. Conical towers, of the same description, are frequently to be met with in Ireland; but their date, and the use for which they were constructed, remain very doubtful, notwithstanding all the researches and investigations of antiquaries. By some they have been deemed *watch towers*, for the purpose of descrying invaders, and communicating by signals their approach. Others suppose that they had been designed for *belfries*, and introduced by some of the crusaders, in imitation of the minarets of mosques, from whence the criers summoned the people to prayers. A third opinion is, that they were *penitentiary towers*, used for the confinement of penitents, until they were restored to the bosom of the church; and that the Irish, (whose country obtained the name of the land of sanctity, *patria sanctorum*, on account of the number of its religious houses,) might have been the original inventors, and have introduced them into Scotland.

On the south side of the town stood the castle of Brechin, but no vestige of it remains. It was besieged by the English under Edward I. in 1303, and was gallantly defended by its governor, Thomas Maule, for twenty days, till he was slain by a stone from an engine, when it instantly surrendered. Near the scite, a castle of a modern construction was built by James Earl of Panmure in 1711, which commands a delightful view of the river Southesk, and the adjoining country; the river washing the foot of the rock on which the castle stands.

In the year 1647, the plague raged with great violence in this town, and carried off six hundred of the inhabitants in the short period of four months! Their bodies were deposited in the ground adjoining to the church, and a monument was erected with the following inscription, in memory of that awful visitation of heaven.

1647.
Luna, quater crescens,
Sexcentos peste peremptos
(Disce mori!) vidit.
Pulvis et umbra sumus.

This town has several well-attended markets, or fairs, particularly *Trinity fair*, which is held about a mile from the town, and is acknowledged to be the best fair for sheep, cattle, and horses, in the north of Scotland.

The Osnaburgh or brown linen manufacture is here carried on to a considerable extent; and, of late years, a good deal has been done in the manufacture of sail-cloth. There are, in the town, three mills for spinning flax; the machinery driven by water; and they give employment to 200 people, of both sexes, and of all ages. Another mill, of the same description, is in the country parish, which employs betwixt 80 and 90. In one of these mills, four looms, for the weaving of linen, have been lately erected, of a new construction, which are driven by water, and have hitherto fully answered the expectation of the proprietor. The following facts may, in some measure, ascertain the extent of those manufactures. The average number of yards of linen stamped in Brechin annually, from November 1800 to November 1810, is 730,000; the average number of yards of sail-cloth manufactured annually, from November 1805 to November 1810, is 155,000; besides betwixt 2000 and 3000 yards of canvass.

Several years ago a beer and porter brewery was erected upon a pretty large scale, at which there were brewed last year (1810) between 5000 and 6000 barrels of porter. It gives employment to 20 persons; but as it is now fitted up for brewing 20,000 barrels annually, more hands will of course be needed for preparing that quantity for the market. The porter is sent to London, and to various parts of Great Britain. In consequence of the war, the proprietors have been prevented from executing their original design of exporting to the continent: at present, however, a considerable quantity is exported to the West Indies. This brewery pays betwixt £700 and £800 of duty on beer and porter every six weeks, and about £70 weekly of duty on malt; so that it yields an annual revenue to government of about £9,700. It has been remarked, that since its commencement, the demand for spirits among the lower classes of people has greatly decreased, and their morals, of consequence, have been evidently improved. The population of the town is nearly 5000. N. Lat. 56° 40′, E. Long. 2° 18′. See Pennant's *Tour through Scotland*, vol. ii.; Grose's *Antiquities*, vol. ii.; *Statist. Hist.* vol. xxi. (A. F.)

BRECKNOCK, or BRECON, called by the Welsh *Aber Hondey*, is the principal and county town of Brecknockshire, in South Wales, romantically situated at the confluence of the rivers Hondey and Uske. Its aspect, at a distance, excites no expectations, which the narrowness, irregularity, and dirtiness of its streets, and the general meanness of the houses, can much disappoint. Yet the mixture which it exhibits of modern buildings, dismantled towers, and religious ruins, render its internal appearance sufficiently interesting. Formerly it was surrounded with a strong wall, in which were four gates. At present it consists of three principal streets, in which scarcely one handsome house occurs. If therefore Mr Malkin's statement be correct, that Brecknock is one of the "best built towns in Wales," we must form but a sorry opinion of the other towns in this principality. The objects most interesting to a stranger in Brecknock are the ruins of a castle and monastery, founded in the reign of Henry I., by Bernard de Newmark, a Norman lord. Of the castle, which seems to have been a grand pile of building, only a few detached fragments remain, and these fragments are degraded and disfigured by a number of ugly cottages, erected in the midst of them. A tennis court has been formed in one angle of the fortress, and an undershot watermill, probably an original appendage, adjoins its scite. One tower of this castle still remains. It is called Ely tower from Dr Morton, bishop of Ely, who was confined in it by order of Richard III.; and who concerted here, in conjunction with Stafford, Duke of Buckingham, the scheme of uniting the two houses of York and Lancaster, in consequence of which, the tyrant was bereft of his kingdom and his life, and Henry VII. was elevated to the throne. "On the banks of the Uske," says an anonymous traveller, "amidst the solemn gloom of trees, may be traced the venerable and extensive ruins of a benedictine priory; and on the east of the town stands the college, once a dominican priory, now a collegiate church, with a dean and other dignitaries." Of this establishment the unfortunate Dr Dodd was a prebend. In his beautiful lines, entitled "Pious Memory," he has described a custom which prevails in this vicinity, of decking the recent graves with flowers. The priory walk, on the shadow declivity of a hill, the foot of which is laved by the Hondey, is extremely pleasant. To the east of the town is a lake well stored with fish.

The coins occasionally found at Brecknock, and the evident traces of Roman entrenchments and fortifications, afford undoubted proof, that this was once occupied as a station, by the conquerors of the world. Of these antiquities, the most remarkable is a fortification, named Y-GAER, about two miles N. W. from the town. It is situated on a gentle eminence, overlooking the Uske; part of its walls remain; and within the area of the camp, some Roman bricks have been found similar to those at Caerlon, with the inscription LEG II AUG. Contiguous to the camp, in the middle of a highway, is a rude carved pillar, called, in the language of the country, the Virgin's Stone. Another monument of Roman antiquity, mentioned by Gough, is a sepulchral pillar, standing erect on the roadside, with an inscription, of which only the word VICTORINI is now legible.

Brecknock has some manufactories of cloth and cotton stockings. Besides three churches, it contains 499 houses, and 2576 inhabitants, of whom 654 were returned in the report to parliament, (1802,) as being employed in trade and manufacture. Its arsenal is a substantial and beautiful brick building, 99 feet long, 85 broad, and two stories high. The tower, already mentioned, contains an armoury for 15,000 stands of arms, and 1500 swords, arranged in the manner of the armoury in the Tower of London. This town sends one member to parliament. It is governed by two bailiffs, fifteen aldermen, two chamberlains, two constables, a town-clerk, and other officers. The market days are Wednesday and Saturday: fairs are held here on the 4th of May, 5th

July, 10th September, and 17th November. Distance from London by Monmouth 168 miles. N. Lat. 51° 54′. W. Long. 3° 12′. (*k*)

BRECKNOCKSHIRE, a county of South Wales, bounded by Radnor on the north, the counties of Cardigan and Caermarthen on the west, Herefordshire and Monmouthshire on the east, and by Monmouthshire and Glamorganshire on the south. It is said to derive its name from Brecan, famous in legendary story, who succeeded to it about the commencement of the fifth century. This county is about 35 miles in length, 30 in breadth, and 100 in circumference; containing 512,000 acres of land, 232,000 of which are in a state of cultivation; and 185,600 are waste, and unfit for culture. It is divided into the six hundreds of Biulth, Crickhowel, Devynnock, Merthyr, Penkelly, and Talgarth: Its market towns, are Brecknock, Biulth, Crickhowel, Hay; it has 62 parishes, containing 6315 houses, and 31,633 inhabitants; of whom, 14,346 were returned, in 1802, as being employed in agriculture, and 4204 in various trades and manufactures.

Sublimity and beauty are strikingly combined in the general scenery of this country. Its mountains, rising in rugged majesty, are separated from each other by cultivated vales; or by glades, whose winding rivers are overhung on either side with the rich and varied verdure of extensive and lofty woods. "Between Slanspyddad and Penpont," says an intelligent tourist, "the scenery is truly enchanting. The Uske, frequently visible from the road, flows on the right amidst oaks of the most vivid green, which feather down the hills from the bottom to the very summit. All the rudeness of nature, and the asperities of surface, are concealed; while, for the space of about a mile, every combination of wood, water, and figure of ground, as viewed from the road, unites to constitute the highest perfection of landscape. In majesty and sublimity, the banks of the Wye infinitely surpass this; but in point of beauty, we had seen nothing comparable to this scene." Beyond Penpont, however, the scenery loses much of its interest. The country becomes more uniform and dull in its aspect; the soil degenerates; and the hills have nothing attractive in their form or appearance, except that they admit of cultivation, which, though it increases their value, diminishes their picturesque effect. The principal mountain in this county is the Vann, or Brecknock Beacon, which is reckoned the loftiest in South Wales. The most important of its rivers, next to the Wye, which forms a natural boundary between this county and Radnor, is the Uske, rising from the Black Mountain, and flowing through a fine valley towards the town of Brecknock.

The system of agriculture pursued in Brecknockshire, is nearly the same as that observed in the contiguous county of Hereford; and the whole district abounds in all the necessary articles of subsistence. Its chief commodities are corn, cattle, fish, and otter's fur, besides woollen cloth, and stockings. Near the borders of Glamorganshire, which abound with coal and iron ore, several forges and iron founderies have lately been established.

This county appears to have been governed by native princes till the reign of William Rufus, when Bernard de Newmark invaded it with a large body of English and Normans, and reduced it to subjection. To secure his new conquest, he built castles in various parts of it, and assigned the government of them to his principal officers. With the same view, he married Nest, grand-daughter of one of the native princes, whose revengeful spirit involved her lord in endless trouble, and who was so abandoned as to cause her son to be disinherited, by swearing falsely to Henry I., that he was the fruit of an unlawful amour. The lordship progressively passed to Milo, Earl of Hereford, and his sons; to Humphrey de Bohune; to Philip Bruse; to Thomas Plantagenet, sixth son of Edward III.; and afterwards to the dukedom of Buckingham, till an attainder vested it in the crown. At the Restoration, James Butler, afterwards duke of Ormond, was created earl of Brecknock.

Besides the antiquities already mentioned in our account of the town of Brecknock, there is a causeway running nearly at right angles with the Isker, and leading probably to the great Roman camp in the neighbourhood. Another Roman road has been discovered near the bridge of Capel Rhyd y Briw, and another along the top of unfrequented mountains. In a field near Brecknock there has also been discovered a Roman hypocaust.

This county is represented by one member in parliament. See Pennant's *Tour in Wales;* Malkin's *Scenery, Antiquities, and Biography of South Wales;* Evan's *Cambrian Itinerary; Letters Describing a Tour in South Wales,* by a Pedestrian Traveller; *The Itinerary of Archbishop Baldwin through Wales,* A. D. 1108, by Giraldus de Barri, illustrated with Views, Annotations, &c. by Sir Colt Hoare, Bart. 2 vols. 4to. London, 1806; and *An Original Tour in Wales,* in the fourth volume of Philips' *Modern Voyages and Travels.* (*k*)

Breda.

BREDA, the capital of Dutch Brabant, was anciently a city of considerable eminence, and was governed by sovereigns of its own. About the year 1100, it was wrested by the Duke of Brabant from the county of Stryen, to which it originally belonged; in 1212, it was held by Godfrey of Bergue as a fief of Brabant; in 1284, John I., Duke of Brabant, conferred the sovereignty of Breda upon Rason de Gavre; in 1326 it was sold to John III., Duke of Brabant; in 1351 it was transferred to John de Polano, Lord of Lieck; in 1404, it passed with his grand-daughter Johanna to her husband Engelbert of Nassau, and remained in the family of Nassau, till William III. of England dying without issue, caused it to be left in abeyance.

Breda suffered severely during the sanguinary struggles in the 16th century, between the Spaniards and the United Provinces, and passed in rapid succession from one master to another. In 1567, it was reduced by the Duke of Alva, in consequence of the resistance made by William of Nassau, prince of Orange, to the claims of the crown of Spain; but, in 1577, was again delivered to the states-general. In 1581, it was taken by the Spaniards under Claude de Berlaimont, an officer of the Duke of Parma; but, in 1590, it was regained by Prince Maurice, who sent a party of 60 Dutch soldiers into the place, conceal-

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ed under planks and turf in a small trading vessel, by whose means he was admitted during the night, and received the submission of the garrison. It is related, that one of these adventurers being unable to refrain from coughing while concealed in the boat, requested one of his companions to put him to death, lest the noise, which he made, should occasion the discovery and defeat of their enterprise. In 1625, it was invested by Spinola the Spanish general, with an army of 30,000 men, who being well aware of its great strength, made his approaches with the utmost caution, and confined his operations chiefly to a blockade, in the hope of reducing it by famine. The garrison, which consisted of French, Dutch, and English troops, under their respective officers, colonels Hauterive, Lohre, and Morgan, and which amounted only to 7000 infantry, with a few troops of horse, made a most vigorous and gallant defence under the able direction of their commandant Justin of Nassau, natural son of William, Prince of Orange. Besides maintaining an incessant and spirited fire upon their assailants, they had recourse to various other modes of annoyance; collected an immense bason of water, by stopping the course of the river Merck, and directing it against the quarters of Spinola, swept away numbers of his forces, covered the neighbouring country with water, and introduced so great a mortality into his camp, that there was scarcely 12,000 men fit for service. The Spanish commander, on his part, though labouring under severe sickness, prosecuted the siege with extraordinary skill and perseverance; caused himself to be carried round his works in a litter; visited every post, and directed every operation in person; and having received considerable reinforcements to his army, reduced the besieged, on the one hand, to the greatest extremity, and, on the other hand, repulsed every attempt of the Prince of Orange to raise the siege, or to throw relief into the place. Still the garrison and inhabitants, though severely afflicted with disease and scarcity, as well as hard pressed by the enemy, continued to make the most obstinate resistance; and, by the united good conduct of the governor and magistrates, in the management of their provisions, were able to hold out four months longer than had been calculated. Henry Prince of Orange, seeing no prospect of relieving his faithful subjects, sent a permission to the governor to surrender upon the best terms that he might be able to procure. This note, which had no signature, was intercepted by Spinola, who took care that it should be forwarded to the governor of Breda, and also accompanied it with the offer of an honourable capitulation. Justin of Nassau, however, suspecting that the whole might be a stratagem on the part of the enemy, observed in reply, that a permission was not a command to submit; and though the garrison was reduced to one half of its number, they all resolved to continue the defence till they should receive from their prince a positive order to yield. Henry having been made acquainted with their brave determination, transmitted an express command, that they should surrender to the Spaniards; but requested, at the same time, that he should be informed, by signal, how many days they were still able to hold out; and was answered by eleven fires kindled in different parts of the city. A duplicate of these instructions fell into the hands of Spinola; but though he was thus enabled to understand, by the signals of the besieged, that they must necessarily surrender at discretion within the space of eleven days, he generously resolved to testify his respect for their bravery, by offering them instantly the most honourable and advantageous conditions. These having been accepted, and the garrison, which had sustained a siege of 10 months, and lost two-thirds of their number, having marched through the gates, the Spanish general drew up his army to receive them, complimented the governor and the officers upon their distinguished good conduct, commanded the sick and wounded to be treated with the utmost tenderness, distributed money among the soldiers, and displayed all the sentiments of a hero, in the testimony which he paid to the merit of the vanquished. In 1637, it was recovered by Henry prince of Orange, after a siege of four months, who requited the generosity of Spinola, by allowing the Spanish garrison to march out with all the honours of war, and loading their gallant commander, Omer de Fourdin, with distinguished praises and valuable presents.

In 1667, Breda was the seat of the famous conference, in which a general peace was established between Louis the XIV. of France, Charles II. of England, Frederick III. of Denmark, and the government of the United Provinces. In 1793, though the fortifications had been greatly augmented by the Dutch, this important place was surrendered to the French after a siege of ten days; but, in the same year, was again delivered up by capitulation to the States.

Breda is situated at the confluence of the rivers Aa and Merck, in a fertile but marshy country, and capable of being surrounded with water, so as to be altogether inaccessible to an army. It is neatly built, and regularly fortified, surrounded with a wall three miles in circumference, and a ditch well filled with water, protected by bastions and a strong citadel. The whole city is of a triangular form, with a gate built of brick at each angle; and the ramparts are adorned with rows of elm trees. It contains about 20 streets, 2200 houses, and 10,000 inhabitants. Its principal structures are; the castle, a magnificent square building, surrounded by the waters of the Merck; the great church, which is a very handsome edifice, with a remarkable spire 362 feet in height; and the mausoleum of Angelbert or Engelbert II. of Nassau, adorned with various statues and inscriptions. Its woollen manufactures were formerly in a prosperous state, but have greatly declined since the revolution. It is 46 miles south of Amsterdam, and 22 south south-east of Rotterdam. North Lat. 51° 37', East Long. 4° 45'. See Foster's *Travels*. (*q*)

BREDEMEYERA, a genus of plants of the class Diadelphia, and order Octandria. See BOTANY, p. 273.

BREEZE. See METEOROLOGY.

BREHONS. See IRELAND.

BREMEN, the capital of a duchy of the same name, is conjectured to have been anciently the *Phabiranum* of Ptolemy, and was known as the seat of an archbishop in the time of Charlemagne. Its inhabitants were among the most early and zealous

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supporters of the Reformation; were closely besieged, in 1547, by Groengen, governor of Zealand, at the instance of Charles V.; and were strongly charged by that emperor, at the diet of Augsburgh in 1550, on account of their obstinate attachment to the principles of Calvin. In 1644, it was conquered by the Swedes; and, at the peace of Westphalia, in 1648, it was secularized into a duchy and fief of the empire. In 1654, its privileges were violated by Charles Gustavus king of Sweden, and its walls invested by an army of that prince; but, by the assistance of the elector of Brandenburgh and duke of Brunswick, it was enabled to make head against its assailants, till, by the mediation of the Dutch, a peace was concluded at Staden, in which all its privileges were confirmed. In 1675, the town and duchy of Bremen were overrun by the forces of the dukes of Brunswick and Luneburgh; but were retained by Sweden at the peace of Nimeguen, in 1679. In 1712 it was reduced by the Danes; but was transferred, in 1715, to the elector of Brunswick, as an equivalent for a sum of 700,000 rix-dollars; and in 1719, it was ceded by the crown of Sweden to that elector, (upon a payment of one million of rix-dollars,) who was afterwards invested by the emperor, as duke of Bremen and Verden. In 1757, the French took possession of the city, but it was hastily abandoned in the year following, when it was instantly occupied by the Hanoverian troops, and remained under the government of the king of Great Britain as elector of Brunswick, till the late subjugation of all that country to the power of the French emperor.

The town of Bremen is situated upon a kind of peninsula, and is divided by the river Weser into two parts, called the old and the new town, which have communication with each other by means of several bridges; on the largest of which is a hydraulic machine of considerable height, for drawing and distributing water to the different quarters of the city. On the building which contains the wheel, is the following inscription:

"*Volve Pater, civi tradam tua dona, Visurgis.*"

The old town is the largest and most populous, and in it the principal inhabitants have their winter habitations, while their gardens and places of residence in summer are in the new town. The streets of the old town are generally very narrow, and the houses very old-fashioned and inconvenient in their structure. The houses in both towns, and in the suburbs, are calculated at 5105, and the number of the inhabitants at 40,000. In the market-place is a large statue of Rolando; and several of the public buildings are very handsome edifices, the chief of which, are the town-hall, loaded with ornaments; the change, a neat modern building; opposite to this a coffee-house, remarkable for the numerous figures in basso relievo on its walls; the arsenal, the college, the Lutheran orphan house, and the Lutheran church. Under the last mentioned structure is a celebrated vault, called the "Bley-keller," or lead cellar, because the lead roof of the cathedral having been melted by lightning, fell into this place, which continues to be so free from moisture, that certain dead bodies, which have been deposited within its walls, have been preserved from putrefaction, and have acquired the appearance of mummies; but its antiseptic virtues have been rated by travellers far beyond the truth. Bremen contains a physical institute, an anatomical theatre, a school for navigation, a considerable library, a museum, which has a tolerable collection of serpents, and other reptiles, with several useful mechanic models, and an observatory, under the direction of M. Olbers, the celebrated discoverer of the new planets Pallas and Vesta. The city is divided into four quarters, each of which has its own court, consisting of a burgomaster and six senators. The predominant religious denomination is the reformed or Calvinistic; and of this persuasion are the magistrates, who generally contrive to choose their successors from their own sect; though the Lutherans are not excluded by law from a share in the government of the town, nor are much inferior in point of number. The revenues amount to about 100,000 rix-dollars, and are levied by a species of property tax. The police is excellent; and the poor are so well provided with work, that no beggars are seen in the place.

The inhabitants of Bremen are rather of a short stature, and form a striking contrast with the tall southern Germans. They are simple and frugal in their manners, and retain many very primitive modes of living. The usual hour of dinner is eleven o'clock in the forenoon; but on Sundays, it is the practice to breakfast at six in the morning, and to dine at ten. They are obliging, frank, charitable, and hospitable in their dispositions; industrious, orderly, and peaceful, in their habits; possessed in general of good natural abilities, improved by a liberal education; and without much pretensions or display of literature, are well acquainted with the chief subjects of useful knowledge. Though they are little addicted to the arts of luxury, it appears, from a painting in the senate-house, that the use of coaches was known among them at a very early period. In the piece to which we allude, and which is a view of the city painted in 1661, is represented a quadrangular carriage, supported upon four pillars, and covered with a canopy, but open on each side, so as to discover the persons within it.

The principal manufactures in Bremen, are cloth, cards, linen, Osnaburghs, printed calicoes, stockings, bonnets, canvass cards, corks, glass, starch, and strong beer, for which last article it has long been famed over the continent. It is celebrated also for its Rhenish wine, the sale of which is monopolized by the city, and is confined to the public vaults. It is much engaged in the whale fishery, and carries on a considerable traffic in blubber and whale bone with the south of Germany. Great quantities of salmon, also, are taken by the inhabitants, and are chiefly prepared for exportation by being smoke-dried. Its commerce with France, especially in wines, is very considerable. Its exports in iron, flax, and linen, to England, Spain, and Portugal, are also very valuable; and next to Hamburgh, it has more trade with America than any other maritime town in Germany. It is rather remarkable, that the trade of Bremen with foreign countries should be so extensive, when it is considered, that large vessels can ascend the Weser only to within two leagues of the city, smaller ones only to within a league and a half; and that thus all the merchandise, whether export or import, must be loaded and unloaded a second time at Vegesack, which may be regarded as the port of Bremen. It is inferior to Hamburgh in population, wealth, and commerce; but it occupies nearly as much ground, and the streets are cleaner and wider, the houses better built, and the whole better planned as a city. Bremen is ten German miles distant from Munden, twelve from Zell, and an equal distance from Hamburgh. East Long. 9°, North Lat. 53° 30′. See Holcroft's *Travels;* and Knigge's *Journey to Lower Saxony.* (*q*)

BRENNER MOUNTAINS, formerly denominated, the *Rhætian Alps*, are a chain of mountains in the Tyrol, running in a north easterly direction from Sterzing to Inspruck. The mountain Brenner, from which the chain derives its name, is so called from the frequent thunder storms which rage on its summit; and, according to Beaumont, is only 5109 feet above the level of the sea. The other mountains are Gefrorn, which rises from the midst of a long course of glaciers, running north-east and south-west, and is one of the highest peaks of the chain, and continually covered with snow; Habichspiz, Tributaan, and Bock-kogo. There are also, on the north-west, mounts Lorenzen, Fartschel, and Tschafatfeh; and, on the south-east, Glander, Schloss, Pragls, and Pallanser. The Brenner mountains rival the Alps in numerous glaciers, and are inferior neither in height nor ruggedness to those of Appenzel. Their summits are entirely bare, and appear to be granitic; while the inferior mountains are calcareous or argillaceous. In the glacier of Stuben, which is 4692 feet above the sea, the granite and porphyry are often covered with calcareous stones, and "it presents," says Pinkerton, "the usual phenomena of such scenes, with beautiful pyramids of azure, which in sun-shine reflect a blaze of light." The town of Steinach stands nearly in the centre of the chain; and when approaching these mountains from Italy, the ascent is almost gradual from Trent to their highest peak. The high road leading to Inspruck passes over them, extending along their summits nearly 12 miles. It is very secure and agreeable during the months of July and August, but very dangerous in winter, on account of the avalanches. The mountains towards the south are rich in wood and pasturage, but those on the north are bleak and barren. Near the glaciers are found rock crystals of various colours; and the inferior ranges contain mines of silver, copper, lead, mercury, iron, alum, and sulphur. In the valley of Zill, is a mine of gold, but scarcely worth the expense and labour of working it. See Pinkerton's *Geography*, vol i. p. 387, and Beaumont's *Rhætian Alps.* (L)

BRENTFORD, a market town of England, in the county of Middlesex, is situated on the north bank of the Thames, about seven miles from London. The river Brent, from which it derives its name, passes through it, and divides it into the old and new town; the former of which belongs to the parish of Great Ealing, and the other to the parish of Hanwell. It is a long, straggling, ill-paved town, interspersed with a few good modern built houses; and is inhabited chiefly by shop-keepers and tradesmen. The church is a modern structure, built in the reign of Edward I., but rebuilt in 1764, and serves as a chapel-of-ease to Great Ealing. Brentford is a place of considerable traffic. Its communication with the capital is greatly facilitated by the Thames, and market boats go every tide to London. The great western road also passes through the middle of the town. Its principal trade consists in making malt; in an extensive distillery, and in the manufacture of bricks, tiles, and earthen ware. It has also a flour mill, on the same construction as the late Albion mills, which, with its other manufactures, affords employment for its numerous poor. About a mile west of Brentford is Sion-house, formerly a celebrated nunnery, now a seat of the Duke of Northumberland; and, at the east extremity of the village, on the opposite side of the Thames, are the beautiful gardens of Kew. Brentford is chiefly noted for being the seat of election for the members of the county, when it is the resort of all the rabble of the metropolis. It has two annual fairs for horses, cattle, hogs, goods, &c.; one on the 18th of May, and the other on the 13th of September. It contains 277 houses, and 1443 inhabitants, of whom 334 are returned as employed in various trades. (*p*)

BRESCIA, anciently named BRIXIA, a city of Italy, is the capital of the department of Mella, and chief place of the district of Brescia. It was founded by the Gauls, under the command of Belovesus; or, as others suppose, of Brennus; but afterwards became a colony of the Romans. In 119 it is said to have received the Christain faith, by the preaching of Apollinaris bishop of Ravenna. In 412, it was burnt by Radagassus, king of the Goths; but was rebuilt by Attila in 452. It was afterwards possessed by the Lombards; but was taken by Charlemagne in 771, who founded its church of St Denis. It suffered severely during the various revolutions in Italy, especially in the disputes between the Guelphs and Gibelines; and, during a space of 28 years, is said to have changed its masters seven times. It was long under the dominion of the dukes of Milan, before it surrendered itself, in 1426, to the republic of Venice. It was taken and pillaged in 1512, by Gaston de Foix, general of Louis XII.; but was again restored to the Venetians by Francis I. in 1517. In 1478, and in 1524, it was visited by a dreadful pestilence, which, at the first of these dates, swept away 25,000 persons. It was taken by the French, under Bonaparte, in 1796; and in 1799 by the Austrians and Russians, to whom the French garrison surrendered as prisoners of war. By the treaty of Luneville, in 1801, it became a constitutional part of the Cisalpine republic, and now belongs to the kingdom of Italy.

It is situated on the small river Garza, at the foot of a range of mountains, in a beautiful plain, filled with trees, covered with flowers, and watered by a multitude of rivulets. It is about a league in circumference, surrounded with good walls, in which are five gates, and defended by a castle, which is placed upon a height, and completely commands the town. The streets are clean and handsome; and most of them washed by small streams from the river. It contains several public squares; the largest of which is surrounded with piazzas, and has the town-house in its centre. It has 19 parish churches, several of which are adorned with fine paintings and statues; 30 convents, a general hospital, a lyceum, and several charitable houses; a palace of justice, which is a magnificent stone building, constructed from the ruins of a temple of Vulcan, and remarkable for its fine architecture and paintings in fresco; and a cathedral, which is a modern edifice, and in which is shewn the famous cross or standard of Constantine. To Cardinal Quirini, who was once bishop of Brescia, and who, besides, contributing liberally to the building of the cathedral, also presented the city with a library, the magistracy, in 1750, erected two marble statues, one of which is placed in the church, and the other in the library. It is the see of a bishop, suffragan of Milan, who used formerly to bear the title of Duke, Marquis, or Earl; and its magistracy, before the revolution, consisted of 600 citizens, divided into several councils, under a noble Venetian, who presided in quality of governor, or *Podesta*, a designation, which seems to have been applied to chief magistrates, even in the time of the Romans, as in the following line of Juvenal:

> —— *Fidenarum, Gabiorumve esse potestas.*

Bishop Burnet speaks of Brescia as in his time, "a great town, full of trade and wealth." The inhabitants are very ingenious and industrious, and carry on several flourishing manufactures. It has long been famed especially for its pistol and musket barrels, swords, knives, and other articles of armoury; and, in its neighbourhood are considerable iron mines and forges, in one of which 300 workmen are employed. In the valleys in its environs, are found also copper, jasper, alabaster, touch-stones as black as ebony, and capable of receiving a polish like mirrors; and a peculiar stone, which resists the influence of fire, and from a single block of which they cut a number of pots or vessels, always taking the smaller out of the heart of the larger. There are made also at this place great numbers of mill-stones; the smaller of a soft grey stone, very easily cut, but quickly hardening in the air; and the larger of a kind of granite studded with calcareous substances. Lintseed oil, but especially grape-stone oil, is made at Brescia in considerable quantities; in preparing the last of which, the following process is followed: The mass, which remains in the wine press, is beaten, kneaded, and sifted, till the stones be separated from the adhering substances; they are then winnowed, by being thrown into the air by a shovel, and left to dry during the space of a month; they are next bruised under a stone; roasted in a copper over the fire, wrapped in a piece of woollen cloth, and, lastly put into the oil-press. The fisheries on the lakes of Esco and Guarda, furnish considerable employment, as well as an important article of traffic to the inhabitants of Brescia and its neighbourhood. In the rivers Adige and Oglio, besides excellent fish, there is found also quantities of gold; and one person, by washing the sand, will gain, ordinarily 12, and sometimes 50 sols a day. The trade in linen and woollen cloths is considerable. That in iron yields 170.000 francs per annum; in flax, 360,000; and in silk, which is the principal manufacture of the place, two millions and a half. The Brescian territories abound in excellent pasturage; and cheese is exported by the peasants to the amount of 130,000 livres annually. To these pastures the people around Lodi, who make the greater part of what is called Parmesan cheese, bring their herds of cows, during the winter half year. One of the peculiar productions of the vicinity of Brescia is a wine called *Santo*, which is of a golden colour, and an agreeable sweetness. In making this wine, the grapes are kept till the month of February, and put into the press when the weather is cold. It is afterwards exposed to a strong degree of cold, that it may not ferment much; and is then sealed up for the space of three or four years. The commerce of Brescia and the fertility of its soil are greatly promoted by the numerous rivers in its vicinity, the waters of which are distributed with the utmost care and economy in all directions; and give motion to an infinity of mills and machinery for spinning silk, manufacturing paper, hammering iron and copper, sawing wood, and boring cannon, &c. These streams are farmed at a high rent; and one proprietor is said to draw 40,000 francs annually for the water on his domains. From the land, through which those canals and rivulets pass, it is common to raise a crop of flax or millet, after one of wheat in the same year; the fields are frequently manured by a crop of lupins, being raised and left to rot on the ground. Its population is about 42,000; its distance from Milan 44 miles, from Mantua 32, from Crema 30; its N. Lat. 45° 31′, and E. Long. 10° 5′. See Bishop Burnet's *Travels* p. 96; Scott's *Itinerario d'Italia*, p. 96.; and Tynna's *Almanach du Commerce pour* 1811, p. 919. (*q*)

Breslau.

BRESLAU, or BRESLAW, the capital of Prussian Silesia, is one of the largest cities of Germany. Its origin is very uncertain, but it is known to have been a bishop's see in 1033, and to have been burned by the Tartars in 1241. In 1335 it was united to the crown of Bohemia, and its chief magistrates were constituted governors of the whole principality, of which it is the capital. The Emperor Charles IV. shewed great favour to the city, and, in 1348 especially, conferred upon its inhabitants many important privileges, which were still farther augmented by his son Vonceslaus. In 1635 its government was surrendered to the Emperor Ferdinand II. and it continued subject to his successors till the year 1741, when it was united to the Prussian dominions. In 1757, a small Prussian army, under the command of Augustus William, Duke of Brunswick Bevern, was driven from the neighbourhood of Breslau, after a vigorous resistance, and the city compelled to surrender to the victorious Austrians; but, in the space of four weeks, it was recovered by the king of Prussia, and the Austrian garrison, to the amount of 18,000, were made prisoners of war. In this last siege several of its churches were greatly damaged, the library of St Mary Magdalen destroyed by the falling of a bomb, and the greater part of the suburbs burnt to the ground.

Breslau is situated on the south side of the Oder, where that river receives the waters of the Ohlau, and was formerly surrounded by the latter as by a moat. All that part of the town which stands between this stream and the present walls, was added by the Em-

Breslau. peror Charles IV.; but the new town is of a still more recent date, and was not inclosed within the fortifications till the year 1529. The whole town and suburbs occupy an extent of two German miles; and among the towns of Prussia it hold the third place, ranking next to Berlin and Konigsberg. According to Kuttner, it is a "dirty old and dull town," but contains many spacious streets, the houses of which are three, four, and five stories high, exclusive of the ground floor, several large squares, and a variety of magnificent public edifices, which are much obscured with smoke and dirt. The chief of these are, the church of the Augustines, of which the great altar is a remarkable piece of workmanship; the Lutheran church of St Elizabeth, the clock of which is accounted one of the finest in Europe; the Hotel de Ville, from the front of which one of the finest prospects may be seen; the Calvinists church of St Mary Magdalen; the College of the Jesuits; the buildings of the Academy; the Exchange; the Custom-house; the Bishop's Palace; and a monument, erected by his own family, to General Count Tauenzien, who was governor of Breslau, and commanded during the siege of 1760. There is also in this town a college of physicians, a botanical garden, an anatomical theatre, two armouries, a mint, and several public libraries. In the chamber of war and domains is a wooden model of the Giant Mountains, executed by Kahl, who received for it 600 rix-dollars. Among the beauties of the place may also be mentioned the walks to certain gardens in the vicinity, especially to the English garden of Prince Hohenlohe at Scheitin. The inhabitants of Breslau embraced the Protestant faith at an early period; and both the magistracy and consistory are of the Lutheran persuasion.

Breslau is the centre of the trade of Silesia; has an easy communication with Hamburgh by means of the canal which joins the Oder with the Elbe; carries on an extensive commerce with the north of Germany and the Baltic; and supports various important manufactures, for the encouragement of which many useful establishments have been made. Its merchants instituted, in 1784, a large manufactory for iron wares, which was immediately invested with great privileges by his Prussian majesty; permitted to send its goods to every part of his dominions; to import its raw materials duty free; and to protect its workmen from military service. The other principal productions of the place, are broad cloths, a mixed stuff made of wool and silk, paper, powder, needles, hats, woollen stockings, leather, calicoes, serge, and various figurers. It is filled with tanners, dyers, and furriers, to whose different operations the waters of the Ohlau, which passes through the town, afford the greatest facilities. Its chief exports are, the linens of Silesia, which are so well known in Europe, and which are purchased at the fair of Breslau chiefly by the Dutch traders; flax, thread, and wool, of which last, however, foreign dealers are permitted to purchase only the surplus of the market; fine cloths, some of which are sent as far as Persia; and madder, which is produced in great abundance in the neighbourhood of the town. On the other hand, it imports, from Bohemia and Moravia, hops, the sale of which is monopolized by the magistrates, who fix the price, and of whom the brewers are obliged to purchase; from Hungary, antimony, orpiment, prunes, honey, saffron, sulphur, tartar, wine, &c.; from Vienna, saffron, quicksilver, ochre, wine, &c.; from Poland, indigo-plant, wax, honey, cotton, coffee, rhubarb, tea, leather, and peltry; from Stettin, and the other ports of the Baltic, French, German, and Spanish wines, spices, herrings, iron, train-oil, lintseed, &c.; from Holland, all kinds of spices, drugs, cloths, sugars, dyeing materials, &c; from Italy, silks, drugs, spices, dried fruits, and other articles of the Levant trade.

At Breslau there are two great public fairs every year, each of which continues eight days. There are three large market-places; called the *great market;* the *salt market*, where glass, leather, wax, honey, &c. are also sold; and the *new market*, where the wood merchants chiefly transact business. The population exceeds 60,000, of which a great proportion are French, Bohemians, and other foreigners; and immense numbers of Jews had their residence in the city till the year 1744, when the king of Prussia banished them all from the place, except a few of the best known families, and such as were employed in the mint. The lands round Breslau are extremely level; and those parts which are nearest the rivers are of a sandy and swampy nature. It is, however, an excellent corn country, yielding rich pasturage, abounding in sheep and cattle, and remarkable for the large size of its cows. The roads in the immediate vicinity of the town are in a wretched state, but the canals and dykes are kept in good repair. Breslau is 35 German miles from Berlin, 44 from Leipsic, 74 from Hamburgh, 40 from Prague, and 54 from Vienna. E. Long. 17° 3′, N. Lat. 51° 6′. See Kuttner's *Travels through Denmark, Sweden, Austria, and Italy*, in 1798 and 1799, letter xvi. Guibert, *Journal d'un Voyage en Allemagne en* 1773, tom. ii. p. 123, Paris, 1803; and Tynna's *Almanach du Commerce pour* 1811, p. 961. (*q*)

BREST, a sea-port town of France, and formerly capital of the province of Britanny, is now the principal place of a district in the department of Finisterre. It is the *Gesobrivate*, or *Brivates Portus* of the Romans. One of the most remarkable events in its history is an attempt, which was made against it in 1694, by Lord Berkely with a fleet of 29 ships of war, and a number of other armed vessels, having on board 12 regiments of infantry and two of marines, under the command of General Tálmache; but the fortifications of the place had been so thoroughly repaired by Marshal Vauban, and the French so completely prepared to oppose the expedition of the British, that the latter were repulsed, after a desperate conflict, with the loss of 400 seamen, 900 soldiers, and their leader, Talmache, who died of a wound in his thigh.

Brest is situated on the declivity of a hill, at the northern extremity of the bay of Brest; and, when seen from the entrance of the bay, opens in a pleasing manner to the view of the observer, and appears much larger to the eye than it is in reality. The works of the fortifications, mingled with gardens and summer houses, present a very interesting spectacle;

and have furnished the celebrated Vernet with the subject of one of his finest paintings. Brest is a large well-built town, and contains several very handsome and regular streets; but the greater part are narrow, winding, and inconveniently contrived. It is divided into two parts, one of which is called the *Cote du Brest*, and the other the *Cote de Recouvrance*, between which there is no communication but by boats. It has two parish churches, a governor, a board of admiralty, and a marine seminary. It is justly considered as the capital of the French marine; and its public buildings, and objects of curiosity, are almost all connected with naval occupations. Those which are most deserving of notice, are its barracks, magazines, rope-walks, sail-cloth manufactories, forges and foundery, the lodging of the galley slaves, the hospital; the theatre, which is small but elegant; the arsenal, an immense and superb structure; the walk, called *le Cours d' Ajetor de la reunion*, where it was intended that a fine statue of Neptune should be erected; the dock-yard, which is well constructed, but which foreigners, and even Frenchmen themselves, are very rarely permitted to inspect; and the quay, which, on one side of the port, is above a mile in length, and 200 paces in breadth, covered with storehouses nearly throughout the whole of its extent. But it is principally famous for its excellent road and harbour, which are capable of containing 500 ships of war, in an anchorage of 8, 10, and 15 fathoms at low water; and which, next to those of Toulon, are the safest and most spacious on the whole French coast. The entrance, which is from the southwest, is a very narrow and difficult passage; and hence it has received the name of *the Gullet*. It is guarded by a castle on the side next the sea, and on the land side by a large ditch and other strong fortifications. Near this entrance is a flying bridge, or a kind of chest capable of containing five or six persons, suspended by a cable and pulleys, and drawn to either side by a rope, which moves upon a cylinder. Besides the commerce connected with marine armaments, the town of Brest has a considerable trade in wines and brandy, and carries on a fishery in sardines, mackeral, and other fish. There are two fairs held at Brest on the two first days of each month, at which cattle, skins, linen cloths, and other articles of merchandise, are sold. At spring tides it is high water in the port at 3^h 33′ 30″; but without the gullet, the tides are $\frac{3}{4}$ths of an hour earlier. The population of Brest is 26,000. Its distance from Paris is 125 leagues, from Amsterdam 180, from Bourdeaux 100, from Havre 90, from Marseilles 205, from Rochelle 75, from Toulon 212, from Cadiz 300, from Lyons 165; and its N. Lat. 48° 23′, W. Long. 4° 30′. See Tynna's *Almanach du Commerce pour* 1811, p. 610. (*q*)

BRETON, or Cape Breton, an island lying near the east coast of North America, between 45° and 47° North Lat., and between 50° and 60° West Long. from London. With the islands Newfoundland and St John, it forms the boundaries of the entrance into the Gulf of St Lawrence; and a narrow passage of about four leagues in length, and half a league in breadth, named the Gut of Causo, separates it from the eastern extremity of Nova Scotia. It is about an hundred miles in length, and sixty in breadth, but of a very irregular figure; for it is so much intersected by bays and small rivers, that it has the appearance of a cluster of islands; and its two principal parts are joined by a neck of land not more than eight hundred paces in length. It was discovered about the year 1500 by the Normans and Bretons, who navigated these seas; and being supposed to be a part of the continent, it was named Cape Breton, which name has been absurdly retained. The French took possession of it in 1713, and at a great expence erected Fort Dauphin, which they made their principal settlement; but the harbour having been found to be of very difficult access, it was abandoned, and Fort Louisbourg was erected in 1720, the fortification of which is said to have cost them not less than one and a half millions sterling. All the harbours of the island are open to the east and south: the north coast is elevated, and almost inaccessible. The harbour of Louisbourg, once among the best in North America, is on the eastern coast. It extends into the country four leagues, in a winding direction, and contains good anchorage, being in all places at least seven fathoms deep. Its entrance, formed by two small islands, is four hundred yards wide; and by means of Cape Lorembic in its vicinity, is discoverable by ships at a considerable distance.

Owing to the number of lakes which overspread one half of the island, and are frozen the greater part of the year, and to the extensive forests which cover the higher grounds, and intercept the rays of the sun, the climate is cold and damp. The soil, which is generally swampy, and covered with a light kind of moss, is but ill adapted for cultivation: On the lands, however, towards the south, considerable quantities of corn, hemp, and flax, are raised; and the island at present abounds with fine hard wood, and excellent timber.

While the French possessed this island, the number of its inhabitants gradually increased to four thousand, who were composed partly of Indians, and partly of ruined adventurers from Europe. They established themselves on all those parts of the coast where they found a proper beach for drying cod, which became the chief object of their attention. As the soil was unfit for agriculture, they did little more than cultivate a few pot herbs for their own sustenance; and the scantiness of the pasture prevented them from rearing cattle. Although the island was covered with forests before it was inhabited, the wood was chiefly used for fuel, and very little timber was exported. An inconsiderable fur trade was carried on in the export of the skins of elks, bears, otters, foxes, and other wild animals. Greater advantages might have been derived from the coal mines, which abound in the island, and which could have been wrought at little expence, as the coal lies in a horizontal direction, not more than seven or eight feet below the surface. But notwithstanding the great demand for that article in New England, these valuable mines were wrought only for the purpose of supplying with ballast the ships which sailed to the French West India islands. The attention of the inhabitants was chiefly directed to the fisheries; the value of which, while the island was in possession of the French, has been estimated at one million sterling. Besides the great export of fish to Europe, part was sent to the French West India islands; in return for which they received sugar, coffee, rum, and molasses. As the islanders could not consume all these commodities, they were allowed to export what they did not need to Canada; and they received in exchange wood, brick, cattle, vegetables, and various kinds of fruit.

As it was evident that the possession of Cape Breton must at all times, but particularly in a war with France, be a most valuable acquisition to Great Britain, a plan was laid, and successfully executed, for wresting it out of the hands of the French in 1745. The scheme was planned in Boston, recommended by their general assembly, and approved of by his majesty. In New England a body of 6000 troops was formed, under the conduct of a Mr Pepperel, a merchant of extensive influence in that country, who, though unacquainted with military affairs, had taken an active part in proposing and planning the enterprise. While the French garrison at Louisbourg was known to be extremely disaffected to the colony, and to have been for six months almost in open rebellion against its officers, commodore Warren arrived at Causo with ten ships of war, embarked the troops of New England in transports, and landed them in Cape Breton without opposition. The enemy abandoned their grand battery, which was detached from the town, and the immediate seizure of it contributed greatly to the success of the plan. While the 6000 American troops, reinforced by 800 British marines, carried on their approaches by land, the British squadron, under the command of that able officer, blocked up the place by sea, so that no succours could be introduced. The town being considerably damaged by the shot of the besiegers, and the garrison despairing of relief, the governor capitulated on the 17th day of June, and the whole island soon shared the fate of Louisbourg, its only bulwark. A few days after its surrender, two French East India ships, and another from Peru, richly laden with treasure, sailed into the harbour, on the supposition that it still belonged to France, and became prizes to the British squadron.

This valuable possession was restored to France by the treaty of Aix-la-chapelle, in 1748, and was attacked a second time by the British in 1758. About 12,000 men were destined again to undertake the siege of Fort Louisbourg. General Amherst being joined by admiral Boscawen with the fleet and forces from England, the armament sailed from Halifax on the 28th of May, and on the 2d of June part of the transports anchored in Gabarus Bay, a few miles to the westward of Louisbourg. The garrison of that town, commanded by chevalier Drucour, consisted of nearly 3000 men. The harbour was guarded by six ships of the line and two frigates; three ships were sunk across its mouth, in order to render it inaccessible to the English navy; but the fortifications were in bad repair, and no part of the town was secure from the effects of bombardment. The governor had taken every possible precaution to prevent a landing, by establishing a chain of posts for some leagues along the most accessible parts of the beach, by forming entrenchments, and erecting batteries; but some intermediate places could not be fully guarded, of which the British commander resolved to avail himself.

The troops destined to make the attack, under the command of the immortal Wolfe, having been driven from their first landing point by a masked battery, which the French opened upon them with a most destructive fire, he espied a rock at no great distance, which had always been deemed inaccessible. Thither he directed major Scott to repair, and if possible gain possession of it, while he himself was employed in re-embarking his troops. That officer instantly carried his men to the spot; but his own boat sinking at the very moment that he was stepping out, he boldly climbed the rock alone. With the utmost danger and difficulty he reached the summit, and was followed by ten of his men. He was instantly attacked by sixty Frenchmen and ten Indians, and saw two of his men killed, and three mortally wounded. With the remaining five he gallantly maintained his ground under cover of a thicket, till his brave companions, regardless of danger, came up to his relief, and put him in possession of that important post. As soon as it was gained, the other troops leaped into the water with the utmost alacrity, and reaching the shore, attacked the enemy with such impetuosity in all quarters, that they soon abandoned their artillery, and fled in the utmost confusion. The British stores and artillery were then landed, and the town of Louisbourg was formally invested.

The governor prepared for making a vigorous defence: he maintained a very severe fire against the besiegers from the town and harbour, and made several sallies; but all these were of little avail against the regular approaches to the town, conducted by the engineers under the inspection of general Amherst, and the destructive batteries raised by detached corps under brigadier-general Wolfe. In the prosecution of the siege, the admiral and general co-operated with the greatest harmony. In a short time, the ships in the harbour were all taken or destroyed; several breaches were made in the fortifications; forty pieces of cannon were dismounted, or otherwise rendered unserviceable; and there being no probability of holding out much longer, the governor, in consequence of a petition from the inhabitants, surrendered himself and the garrison prisoners of war. Thus, after having four hundred men killed and wounded, the British obtained possession of the whole of this important island; and found, in the strong town of Louisbourg, two hundred and twenty-one pieces of cannon, eighteen mortars, and a considerable quantity of stores and ammunition. The loss was the more severely felt by France, as it was attended with the destruction of several ships and frigates. This possession was confirmed to Great Britain by the peace in 1763; but since that time, the fortifications of Louisbourg have been destroyed.

This island is of great value to Britain, as it commands the Gulf of St Lawrence, and may be considered as the key of Canada. It secures to her the exclusive possession of the very valuable fisheries on its coasts. It possesses abundance of iron, of which it does not appear that the inhabitants have yet availed themselves. Its extensive coal mines may be

Breton.

wrought at a small expence, the coal (as has been already mentioned,) lying horizontally a few feet below the surface; and as no coal has as yet been discovered in Canada, that article might be rendered a source of great emolument and advantage. Its forests might also supply timber for the navy; the communication with the interior of the island being easy, by means of a number of lakes and inlets from the sea, which are found in every direction. See Gray's *Letters from Canada*, p. 19. Heriot's *Travels through the Canadas*, p. 17; Pinkerton's *Geography*, vol. ii. p. 629; and Smollet's *History of England*, vol iii. iv. (A. F.)

BREWING.

BREWING is the art of making malt liquors, such as porter, ale, and beer, which have a vast number of local appellations, depending upon their taste, colour, &c.

The art of brewing is of great importance in this country, where the principal beverage of the inhabitants consists of fermented malt liquors, which are generally considered as the least prejudicial to the constitution, of any of those inebriating liquors, which, in the present state of society, are looked upon as essential to the support of the human frame. The practice of brewing porter is brought to great perfection in London, and many other towns are celebrated for their ales, &c.; but the principles upon which these advantages depend, are not perfectly understood. The superiority of particular ales, is generally attributed to local conveniences of water, climate, malt, &c. which might, in a great degree, be attained, from a particular management of the processes upon which the art of brewing depends. It would be presumptuous to attempt to settle the principles of an art so complicated; but we shall endeavour to describe faithfully the different processes of brewing, from the extraction of the virtue of the malt, to the fining of the beer. This is all that our limits will permit us to accomplish; and we hope it may be found of utility to the practical brewer, in giving him the detail of the art as practised in London, where porter is brewed on such a large scale, and where the most scrupulous attention is paid to the economy of materials, and the perfection of the process. In doing this, we shall first give a full description of a London brewery, and of the various utensils employed in it; and then a detailed account of the different processes which are employed in this useful art. But before we proceed to any of these heads, we shall first give a general outline of the different operations in brewing.

The principal ingredients employed in brewing beer, are malt and hops, from which the virtues are extracted by solution in hot water, and this extract is fermented with yeast. Malt is made from barley, which being steeped in water, and then spread out in thin layers, vegetates, and produces a sweet substance termed saccharum, which did not previously exist (at least in the same form) in the dry corn, and which disappears if the process of vegetation (or germination as it is called,) is carried too far. In order to prevent this, when the corn is judged, by known signs, to be in that stage which produces the greatest quantity of saccharine matter, the germination is stopped by drying the corn upon a kiln. This evaporates the moisture, and prevents the farther growth of the corn, now converted into malt, which will keep till it is wanted by the brewer.

Brewing.

Malting.

The malt in the brewer's hands is first ground coarsely, so as to break every grain into 3 or 4 pieces. The malt, or, as it is now called, the grist, is put into a large vessel, termed the mash tun, and hot water admitted into it from the copper, where it remains till the water is supposed to have extracted sufficient sweetness from the *goods*, as the malt is called in this stage of the process. The goods are stirred up at intervals, to expose every part of the mass to the action of the liquor;

Mashing.

and for a certain time, at the conclusion of the mashing, it is not disturbed, that the extract (which is called wort,) may not be thick, from holding the gross parts of the flour and mucilage of the malt in mechanical mixture. After being left at rest a short time, these gross parts subside upon the goods; and the wort running through them when let off, is, in some degree, filtered, and flows clear into a vessel beneath the mash tun, called the underback.

Boiling.

From this vessel it is again pumped up into the copper; and when the hops are put in, it is boiled for some time, in order to extract the bitter of the hops, to coagulate the mucilage extracted from the malt, and evaporate a portion of the water used in mashing. When sufficiently boiled, the wort is run off into a vessel called the hopback, which detains the hops, but permits the liquor to flow into the coolers. These are large vats, not more than 5 inches deep, in which the liquor remains till it is cooled to a proper temperature for the process of fermentation;

Fermenting.

which gives the strength or spirituous quality to the beer. This is effected in vessels, called squares or gyle tuns, in which a sufficient quantity of yeast is added, to put the liquor in fermentation; the symptoms of which are an internal commotion of every part of the liquor, caused by the extrication of gas, which rises through the fluid in innumerable bubbles, producing an universal motion, and a continual singing, and raising to the surface a constant stream of yeast, in which the bubbles of gas are enveloped. This yeast floats upon the beer, and is called the head. After this fermentation has continued some time, and the head does not seem likely to rise any higher, it is necessary to put a stop to it, as it would be quickly succeeded by another fermentation, called the acetous fermentation: the first being called vinous, producing alcohol or spirit; while the second generates acetic acid, or vinegar. This operation of checking the fermentation is called cleansing.

Cleansing.

It is performed by drawing off the beer, and putting it into small casks called rounds, where it still continues to ferment and discharge yeast for some time, the casks being filled up as they diminish in their contents. When the working ceases, the casks are bunged up to prevent it from growing flat; and if every thing has been successful, the beer requires nothing but age to fine itself, and be fit for the table. In large breweries, the store of beer is not kept in the small casks, but in immense casks called the store vats, into which it is put from the rounds, as soon as the working ceases.

Fining.

When sufficient time cannot be allowed for the beer to fine itself, (that is, to deposit the mucilage which is suspended in it, and which gives it the appearance of clouds of lighter and darker colours,) a preparation of isinglass and sour beer, called finings, is employed to precipitate the clouds, and render it transparent; a quality which is deemed a great recommendation, as is also a fine colour, which, in some liquors, is produced by colouring. It frequently happens, that the beer does not turn out good, from acidity, flatness, &c.; and many methods are employed for improving it, by adding various chemical preparations. This was formerly reckoned the most valuable branch of the art, and innumerable nostrums were considered by their possessors as invaluable secrets; but of late the introduction of the thermometer, in the operations of the brewery, has shewn, that more is to be obtained by conducting the previous processes in a proper manner, than by trusting to remedies, for the errors arising from inaccuracy in the heats of the different liquors, or from inattention to the circumstances of the weather, &c.

Having thus given a brief sketch of the process of brewing; we shall now proceed to the description of an extensive brewery, many of which are to be seen in the metropolis.

CHAP. I.

Description of a London Brewery.

Description of a London brewery. Plate LXXVII.

The interior of a complete brewery is represented in Plate LXXVII. The dimensions of the different vessels which it contains, are taken from the brewery of Messrs Brown, Parry and Co., Golden Lane, which having been recently rebuilt, contains most of the new improvements in the utensils employed in this manufacture. We have been compelled, in our Plate, to arrange the various vessels, &c. in a different manner from what they are in the brewery itself, where, from many circumstances, such as the form of the premises, want of sufficient room, &c. the arrangement is not quite so uniform as it would have been, if none of these causes had existed at the time of its erection. Fig. 1. is a plan of the brewery, and Figs. 2 and 3 are different elevations of the establishment. The latter are not taken upon any particular line, being chiefly intended to shew the relative levels of the different vessels. The same letters of reference apply to all the figures. A, B represents the two coppers, each containing 300 barrels, having the fireplaces beneath them; *a*, *a* are their chimneys; and C, D the two mash tuns, situated exactly over the underbacks E and F (Fig. 2). G is the building for a steam engine of 36 horse power; H the boilers of the engine; *b* its working beam, and *d* its fly wheel. On the axis of this is a bevelled cog wheel, giving motion to a vertical shaft *e*, from which, by means of wheel-work, the power of the engine is distributed through the works. At *f* it works the pumps for raising water from the well to a cistern over the engine house; *l*, *m*, and *n*, are three other pumps, for raising the liquor in different stages of the process. A shaft *g* drives the four mill-stones *r* for grinding the malt; two others at *h* (Fig. 1.) turn the mashing machines, which agitate the malt while in the process of mashing: *k* is a screw for conveying the grist from the mill towards the mash tuns. It is enclosed in a wooden tube, into which the malt drops, and as the screw revolves it pushes the grist along the tube. The screw is formed by tin plates nailed upon a wooden shaft, which is turned by the mill. This shaft conveys the malt to another screw *o* placed inclined, which elevates the grist into a screwing machine T, through which the ground malt passes; but any grains of malt, which may have escaped the stones without being broken, are separated and delivered between a pair of iron rollers at *t*, which crushes them, and they fall into a screw *v*, which also receives the grist that has passed through the screw, and conducts all together into the binns, VW, Fig. 2, situated over the mash tuns, where it is kept for use; and when it is wanted, it is let down into the tuns, by drawing a number of shuttles in the bottom of the binns.

Besides these, there are other movements, which cannot be wholly shewn in such small figures; such as at Q, which is a sack-tackle, for drawing up sacks of malt from carts in the street, to the loft in the top of the building. Here the sacks are placed upon a hand-barrow, and wheeled to small trap-doors in the floor, through which the malt is pushed down into the great malt binns S, Fig. 1 and 3, where it is kept till wanted for grinding. It is then filled into sacks again, which are drawn up from the binns by a sack tackle, and wheeled to the hoppers *x*, Fig. 2, over the mill-stones. Here the malt is shot into a small binn; and a machine *y*, called *Jacob's ladder*, elevates it into the hopper. This machine is a broad endless strap, with small tinplate buckets sewed upon it. The strap revolves upon two wheels, one at the bottom, and the other at the top of the lift. The buckets fill themselves with malt in the lowest binn, and throw it into the hopper; as the mill causes it to revolve in the same manner as the chains of buckets employed in some countries to raise water.

The hops are drawn up from the carts by a tackle at Z in the plan, and deposited in the loft 1, (Fig. 3.) When they are wanted for use, the bags are wheeled upon a truck along the different lofts, to the floor level with the top of the coppers A, B, where the bags are cut open, and thrown into the coppers. The steam engine, as before mentioned, works an eight barrelled pump *f*, Fig. 2. termed the cold liquor pump, which raises the cold water (liquor) from the well, situated at K, and pumps it into an immense cistern N, (liquor-back) placed over the steam engine; to which, indeed, it forms a roof, being 32 feet long, 12 wide, and eight feet in depth. Here the liquor is reserved for use. From the liquor-back it is conducted by a pipe, shewn by the black line 2, 2, 2, Fig. 2, to the coppers A, B, and has sluice cocks to stop or admit it to either at pleasure. In various parts of this pipe are short branches, ending in a screw vessel. To these branches the ends of leather pipes, (hose) such as are used in fire engines, are at pleasure connected by screw sockets, and the liquor, (water) by these, conveyed to any part of the premises; a nose pipe being screwed to the other end of the hose. A jet of water is thrown into any of the vessels in the whole works, to wash and sweeten them, or to fill them with liquor when the brewing is stopped for a time, that the vessels may not dry and crack, so as to leak when again used. The liquor, when heated in the coppers, is let out through large cocks into copper cisterns 4, 4, Fig. 1 and 2, and these communicate by pipes with the mash tuns. The wort, when mashed, is let down by cocks into the under backs. The wort pump *n*, Fig. 2, has pipes coming from either of the under backs E, F, to take the wort from them, and throw it up into a gutter, 14, 14, conducting it into various parts of the premises, and having plugs in the bottom to let it escape at any particular place. When the wort is pumped up into the copper, it runs into a shallow back, 5, from which it is admitted to either copper at pleasure. After being boiled with the hops, the wort and hops are let off through the cocks; and wooden gutters are hung on the cocks to conduct the wort from either copper into the jack back X, which has a floor of cast iron plates, pierced with small holes, to admit the wort, but retain the hops. This wort runs into a cask Y, from which it is drawn by a pipe leading to the wort pump *n*, and by this it is thrown again into the gutter 14, which conducts it to any of the coolers LL, Fig. 1, 2, and 3, which are very shallow backs, occupying one wing of the building, as shewn in Fig. 1. They are more numerous than they appear to be in the drawing, a cooler being placed in any convenient part of the brewery; for as they require a sufficient number of coolers, to contain at least three or four times the contents of the two coppers, it requires every vacant space to receive them. Those in the wing are placed one over the other, and the building has very large open windows in all its sides, that the air may have free access to the wort in them, in order to cool it as expeditiously as possible. The hops which are left, as before mentioned, in the jack back, are filled, by men, into tubs, which are drawn up by a tackle worked by the engine, and again put into the copper to be boiled a second time, with the second and third wort.

From the coolers, the wort is conducted by pipes 6, Fig. 3, proceeding from each, and uniting before they enter MM, the squares, or gyle tuns, in which the liquor is first put to ferment. From these the beer is conveyed by pipes into a back at 7, Fig. 3, from which the cleansing pump *l*, Fig. 2, draws and throws it up into a vessel 8, Fig. 2 and 3, called the cleansing batch. It afterwards goes from this to the working tuns at 9, Fig. 2, and 3, beneath the coolers; and, to conclude that operation, it is conveyed by pipes 10, Fig. 3, laid beneath each double row of tuns, with branches which connect them all. One cock fills each double row. The yeast, produced from every four tuns, runs down a wooden pipe into a large cistern 11, (Fig. 3,) where it is drawn off and sent away. The same pipes 10, which fill the rounds, communicate, by other branches, with the starting pump *m*, Fig. 2. This pump throws up the beer into the starting batch 18, from which a pipe proceeds to the large store vats O, O, Fig. 1 and 3, situated in the other wing of the building. These are immense tuns in which it is kept till wanted for sale, and whence it is drawn off by means of a leather pipe or hose, that conducts it, as at P, Fig. 3, into the small buts, in which it is sent away from the brewery.

Brewing. Plate LXXVII.

The store vats are arranged in one of the wings of the building, as represented in Fig. 1; and over them is the loft 1, Fig. 3. for storing the hops. The space allowed for these in the plan, Fig. 1. is much less than it ought to be, in proportion to the size of the vessels on the *stage*, which is the name given to that part of the brewery containing the mash tuns and coppers. The same may be said of the malt stores situated at S in the plan. This, however, is of little importance, as the spaces alluded to vary in different establishments. Some of the largest of the store vats are 40 feet in diameter, and contain 5000 barrels, and the spaces round these are filled up by others of smaller dimensions. They are all supported upon iron pillars, so as to admit small casks to be stowed beneath them, as shewn in Fig. 3. This arrangement allows easy access to the bottom of the vats for repairs. The pipe which brings beer into the storehouse, is conducted along over the vats, as shewn by the dark line in the plan, and screw vessels proceed from it at proper points, to which hose can be joined to fill any individual vat. The malt binns are also set on iron columns, to admit casks beneath, and to prevent, as much as possible, the entrance of vermin. The squares are supported in the same manner, to form coal vaults; and the coppers are built upon arches, which are used to increase the coal cellars,—a provision very necessary in such a work, where the daily consumption of coals, for the two coppers and the engine, amounts to near nine chaldrons of 36 bushels each.

In the two elevations of the brewery, it should be observed, that the different vessels cannot be shewn in their relative positions, otherwise they would fall behind each other. The mash tuns, for example, would in reality come before the mill and pumps, and the engine behind both of these. From this cause, the length of the pipes and shafts appear much greater in the elevation than they really are.

The reader will now be able to form some idea of the great extent of a brewery, and the excellent provisions which are made for diminishing the labour in every department, in which the steam engine is the chief agent. The establishment delineated in Plate LXXVII, is not on the very largest scale: several works have three coppers, and all their attendant utensils; and some of them, as Messrs Meux's and Whitbread's, have four coppers.

Plate LXXVII.

Brewing trade.

The extent of the brewing trade will be seen from the following account of the quantity of porter brewed by the 13 principal houses in London, during the last five years:

Brewing trade in London.

Quantity brewed in one year, ending By	*July* 1807. Barrels.	*July* 1808. Barrels.	*July* 1809. Barrels.	*July* 1810. Barrels.	*July* 1811. Barrels.
Barclay and Perkins	166,600	184,196	205,328	235,053	264,405
Meux, Reid, and Co.	170,879	190,169	150,105	211,009	220,094
Trueman, Hanbury, and Co.	135,972	117,374	130,846	144,990	142,179
F. Calvert and Co.	83,004	68,924	90,363	133,491	105,887
Whitbread and Co.	104,251	111,185	100,275	110,939	122,316
H. Meux and Co.	——	——	40,663	93,660	103,152
Combe	80,273	70,561	75,551	85,150	81,761
Brown, Parry, and Co.	125,654	131,647	114,001	84,475	72,367
Goodwynne, Skinner and Co.	72,580	70,232	60,233	74,223	85,181
J. Calvert	37,033	38,002	39,155	Given up.	Given up.
Elliot and Co.	47,388	48,669	45,608	57,251	58,042
Taylor	30,273	32,800	40,007	44,510	46,222
Clowes, Maddox, and Newbury	38,544	39,273	40,231	41,594	36,872
Total,	1,092,451	1,103,032	1,132,366	1,316,345	1,338,478

Water.

The water used in most of these works, at least in seven of them which we have visited, is pumped from wells; and there is no foundation for the received opinion, that the superiority of London porter arises from the Thames water. This water was indeed used by all of them some years ago, before the discovery of the excellent and inexhaustible spring, which is to be found beneath any part of London. This city is situated upon a stratum of clay from 150 to 200 feet in thickness, lying upon a stratum of chalk, with the intervention of some sand. The rain falling upon the extensive range of hills which the chalk stratum forms, (by running up gradually for 20 or 30 miles,) is received into the fissures of the chalk, which are always full, up to the level of the clay strata. The water thus poured up, flows over at the lowest points of the clay, (covering this immense subterranean reservoir,) forming the rivers Lea, Coln, and New River, which run upon the surface of the clay, into the Thames. Now, by sinking a well 150 or 200 feet deep, and piercing the whole thickness of the clay, the same water may be obtained by perpendicular ascent, which was conducted by the New River at such an immense expense near 30 miles upon the surface. The instant that the clay is pierced, the water rushes up so violently as to fill the whole depth of the well in a few minutes, and sometimes runs over a great quantity. The sand between the clay and the chalk is forced into the well with the water, so as nearly to fill it up, and then it obstructs the free passage of the water. This is remedied by driving down a copper pipe before the clay is quite dug through, and boring out the strata within the pipe. By this means the end of the pipe can be got down some small distance into the sand. When the borer is removed from this pipe, the water blows up the sand as before in great quantities through the pipe; but its upper end being many feet above the bottom of the well, affords room round it for lodging this sand, without choking the well; and when the well becomes filled, and runs over quietly, the sand does not rise, because the great pressure of water is relieved; but if, (as frequently happens,) the demand for water from the well is greater than the pipe can supply, without sinking the water in the well, the sand will come up. This happened a few years ago at Messrs Meux's well, which was often sunk 100 feet by the continued pumping of the engine; and then the pumps drew up such a quantity of sand as to fill the liquor-back and condensing cistern of the engine half full in a few days.

Wells in London.

Of hard and soft water.

Much has been said of the qualities of different kinds of water for the purposes of brewing, and writers in general have recommended soft water as preferable to hard. The latter is said to be less inclined to fermentation, and therefore the beer will have less spirit than if made of soft; but, it is more easy to brew transparent liquor from hard water, and it is not so liable to turn sour. Soft water, procured from rivers, often imbibes a great proportion of vegetable extract, and is then so liable to fermentation as frequently to become sour. As we see a general change in the system of the London brewers, from using soft river water, to hard spring water, it is a presumptive proof, that the very purity and transparency of the water is of greater consequence than its hardness or softness; and the knowledge of this fact may induce brewers in other situations to place less dependence upon the nature of their water, but to endeavour, by varying the management of their processes, to produce any kind of liquor from any water, (hard or soft,) provided it is clear, sweet, and free from mineral taints.

CHAP. II.

Brewing Utensils.

Brewing utensils.

In describing the different utensils and vessels employed in a brewery, the mechanism used in the operation of mashing comes first to be considered. The mash tun is usually a large wooden tun, formed of vertical staves bound by iron hoops, as shewn in Fig. 2. of Plate LXXVIII. It has a false bottom placed a few inches above the real bottom. This is pierced with a great number of small holes, to admit the liquor, but retain the malt, which lies upon it as a floor. The liquor is brought by a pipe into the tun beneath the false bottom, and forces its way up through the goods (malt); and when it appears above them, the goods are stirred up, to expose every part of them to the action of the liquor. This was at one time performed by men, first using long rakes to level the heaps of malt, and afterwards rowing the

Mash t

goods with large oars; but the great scale on which the breweries in London are now conducted, renders this method inadmissible, from the number of men it would require. Mashing machines have therefore been generally adopted within the last 20 years, in all the great breweries. A number of different constructions are in use, and seem to answer their purposes well; but as the greatest number have been erected by Mr Cooper, Old Street, London, we have procured a drawing of one of his construction. The mash tun and underback for this machine are wholly formed of cast iron, to avoid the continual and expensive repairs, which wooden vessels of such large dimensions require. The machine in question was erected in 1809, at Messrs Barclay and Perkin's brewery, Southwark; and the iron tun by Mr Jonathan Dickson, who has a patent for methods of forming various large brewing vessels in cast iron.

Plate LXXVIII. Fig. 1. is a plan of the mash tun, and Fig. 2, an elevation of it; shewing also the underback beneath it; one half of the mash tun being represented in section, to shew the machine within it. AA, Fig. 2, is the level of the stage or floor in which the mash tun is placed. BBBB is the tun, formed of a number of pannels of cast iron plates screwed together. The disposition of these in the bottom is shewn by the plans in Fig. 1. The tun is supported upon 8 cast iron columns DD, which are united at the upper ends by an iron framing E, which confines them in a vertical position, and connects them with a central column F, shewn by dotted lines in Fig. 2. at the upper end. This is cast hollow, to form the continuation of a pipe G, which brings the liquor into the tun from the copper. This pipe has also another branch H, conveying the liquor up into the tun, beneath the false bottom I, which is the only part of this machine made of wood. In the centre of the tun a vertical axis K is set up and turned round by wheelwork communicating with the upper end of it, as shewn in Fig. 3. Upon this axis are two bevelled wheels, *a* and *b*, giving motion to the mashing engine. These wheels turn two horizontal axes L, M, extending from the centre to the circumference of the tun. The former has 4 wheels upon it, over which pass 4 endless chains, which also pass round wheels upon a horizontal axis N near the bottom of the tun. Upon the endless chain cross pieces of iron *d* are fixed; and these have teeth in them, (as is shewn in the elevation, and on a larger scale in Fig. 5.) which, as the chains revolve by the action of the wheel *b*, raise up the malt from the bottom of the tun to the top of the mass of malt. That this stirring may be performed in all parts of the tun, the frame containing the axes L, M, N, has a progressive motion round the tun, by the following means: On the kirb or upper edge of the tun, is a ring of teeth OO, shewn in the plan. These are engaged by an endless screw, which is mounted in a frame P, and shewn in perspective in Fig. 9. This screw has a rotatory motion, given it by a wheel Q on the extreme end of the axis M, which turns pinions *d*, *e* on the axis of the screw. The wheel has two rings of cogs *h* and *i* upon its face, one about $\frac{2}{3}$ds the size of the other. Each engages its pinion *d* and *e* on the spindle of the screw; neither of which are fixed to this spindle, but are at liberty to slip freely round it. Between the pinions, is a circular plate *k* fitted upon the axis with a fillet, so that it must revolve with it. This plate has studs projecting from both sides, and the pinions have similar studs. Now when the plate *k* is thrust towards either of the pinions by means of a lever *l*, it causes the axis and screw to revolve with the same velocity that the pinion has; and as the pinions have different velocities, from being turned by two different rings of teeth, it follows, that by raising or depressing the end *m* of the lever *l*, the screw may be turned with either of these velocities at pleasure, and thus cause the machine to make the circuit of the tun in a greater or less time. The extreme ends of the two axes L, N, are supported in a iron arm X, (see Fig. 4.) fixed to the iron frame P of the screw, which runs upon the edge of the tun with four rollers. From this frame two rods *p p* Fig. 1. extend to a frame shewn in Fig. 3, which surrounds the central axis, and supports the central axis by a collar at its upper end, and the lower point of the axis is fitted into a socket made through the frame. Fig. 4.

The underback RR, which is placed between the 8 iron columns, upon brickwork, supported upon bearing piles, is formed of cast iron plates, united by screws, in the same manner as the mash tun, and as is explained in the Figures. The plates are flat on the inside, but have flaunches all round the outside, and ribs across to strengthen them. This is shewn by representing part of the plates as removed. The wort is drawn off from the mash tun, by 8 cocks in the bottom, two of which are shewn at S S, Fig. 2. They allow the wort to flow into the underback, whence it is drawn by a pump, the suction tube for which is marked T, and its situation is explained in Plate LXXVII. It will be seen from that Plate, that a large binn is situated over the mash tuns. This receives the grist as fast as it is ground, and here it is reserved till wanted. It is the opinion of some brewers, that the malt, when ground, is the better of being kept some days before it is mashed; but we do not know any reason for this. If this has any effect, it can only arise from exposure to the air; though it cannot have much of this in the close binn over the mash tun, to which it is conveyed by the screw, which is also inclosed in a tight trough, that the fine flour, which will unavoidably be produced in the grinding, may not be lost, as is the case in works where this is not attended to. When the grist is let down into the tun, it is enclosed by sackcloth, hooked round the edge of the tun, and round the lower edge of the binn, by which means none of the flour is lost in dust in any part of the process.

Goodwynne's mashing engine.

Besides the mashing engine which we have described, many others of different constructions are in use. One of these invented by Mr Goodwynne, and employed by him in his extensive brewery, is deserving of notice. It is of the figure of a half cylinder, with the central line placed horizontal. In this central line, an iron shaft is fitted, and turned round by wheelwork from the steam engine. It has several iron arms fixed perpendicularly upon it at different parts of its length, which, as the shaft revolves, sweep the whole contents of the tun; and having teeth fixed in them, they effectually mash up every part of the goods. These arms are not all fixed on the same side of the axis, but are arranged at equal angles round it, so as to dip into the goods in succession. When, by their continual motion, the grist is accumulated at one side of the tun, the motion of the shaft is reversed by wheelwork adapted for the purpose, and this brings the grist back again.

Mr Silvester's mash tun.

Another machine, which we have seen at Messrs Clowes and Co. was contrived by Mr Silvester. It consists of a vertical spindle in the centre of the mash tun; and upon this, an iron arm of a length sufficient to extend across the diameter of the tun, slides up and down, through the depth of the grist. The arm is provided with teeth projecting from one side of it, like a rake; and these teeth are so contrived, that when the arm descends, they hang down vertical, and their points penetrate the goods, without disturbing them; but when the arm reaches the bottom of the tun, the teeth are turned by the machine, so as to be horizontal, and are then drawn up; during which action they raise a portion of the grist, from the bottom to the top. The next time the arm descends, it is turned round with its spindle a few degrees, so as to take a fresh portion of the tun; and in this manner its action continues, till in about 30 or 40 strokes it completes its revolution round the tun. This construction admits of the mash tun being covered close over by large doors, a circumstance of great importance for retaining the heat.

Dr Shannon.

It will be proper to notice here a proposal by Dr Shannon, for a mash tun, which is recommended to be made air tight, and inclosed within another vessel also air tight; the space between them to be filled with steam supplied from the steam engine, or from a boiler made on purpose. This method of keeping up the heat would undoubtedly be attended with great advantages, but some difficulties would occur in the execution of it. Setting aside the enormous expence of two such vessels, it is essential in a mash tun that the malt, after being mashed, can be quickly removed from it, and that when empty the air should have free access to every part of the tun, that it may dry without becoming musty.

Mr Long's.

A patent for the same purpose was obtained by Mr Long in 1790. He proposes the mash tun to be constructed as usual, but with a small boiler for water by the side of it. From this boiler a pipe proceeds, and entering the tun near its bottom, makes one or two revolutions within it, and communicates the heat of the water which it contains to the goods in the tun. It then passes out again near where it first entered, and delivers the water into a cistern, from which it is pumped up to the copper, and the place again heated. By this circulation of hot water through the tun, the heat, during the mashing, may be regulated as the brewer thinks most proper. The patentee advises, that the liquor should be first let upon the malt from 20 to 30 degrees lower than usual, and that the wort should be afterwards brought to the proper heat by the small boiler. The same effect may be produced by a small fire-place under the mash tun. We have little doubt but this practice would be attended with some advantages in making a proper extract, and would totally remove the effect of the weather upon the process of mashing.

The next utensil which we have to describe, is the brewing copper. This machine was formerly only an open copper, set in brickwork over a fire place, in the same manner as the boilers which are used for culinary purposes; but in the immense coppers which are now employed, the saving of fuel is an object of great importance, and every means which can tend to this are adopted.

Figs. 1, 2, 3, and 4, of Plate LXXIX., are different sections, to explain the structure of a close copper which contains 300 barrels. A A, in all the figures, denotes the external brickwork, which is a cylindrical wall, built upon the arches, as shewn in Plate LXXVII. In the lower part of this is the ash pit B, and the fire-grate placed over it, being partly supported by iron pillars. CCC is the copper, hung in the brickwork by a projecting ring of a few inches, at the place where the hemispherical dome G joins upon it. The dome is surrounded by a copper from DD, to contain the water which is intended for the succeeding mash, or afterwards for the wort produced by the mash. This liquor is heated with the steam produced by the copper, which is conducted up a large tube E, rising from the center of the dome. To the top of this, four smaller pipes FF, Figs. 2 and 3, are joined, turning down to the bottom of the pan, and open at their lower extremities, by which means the steam is conducted beneath the liquor contained in the pan, and by bubbling up through it, soon communicates to it a considerable degree of heat. A recess is made at X, Figs. 2 and 4, in the copper pan, to expose the dome G; and in this place is the man hole for entering to the copper. Another of these man holes is provided in the top of the copper, at the upper end of a large tube H, Figs. 2 and 4, rising from the dome. I is the chimney to the copper, situated over the fire door *a*, Fig. 3, and the chimney has an arch in it, to give passage to the fire door. The course of the flues is shewn in Fig, 1, which is a horizontal section, taken a little above the level of the grate bars, upon which the fire rests. On each side of this grate a jamb of brickwork KK is built. This supports the bottom of the copper, and compels the flame and smoke to go backwards, and surround the copper, by rising up in the dark space shewn in Figs. 3 and 4. It then turns round in the two semicircular passages over and behind the jambs KK, Fig. 1, and enters the chimney by the opening at L, Fig. 3. The chimney is double, having a partition up the centre, which divides it into passages, one of which is appropriated to each flue. The opening L is furnished with an iron door, which can be closed at pleasure; and the bottom of the chimnies are likewise shut by iron doors at *d*, Fig. 3, which slide back horizontally when they are required to be open. By means of these doors the stoker, or fire-man, can at all times regulate the draught of the fire; for by throwing open the doors *d*, *e*, and at the same time opening the fire-door at *a* in front, the draught is nearly destroyed, as the cold air passes directly up the chimney without going through the fire; and by closing the door L, the draught is totally stopped, and the fire soon extinguished. In the centre of the copper a spindle M is fixed, passing through a tight stuffing box. At the top of the tube E, and above this, it has a cog wheel *e*, by which the spindle is turned round. On the lower end of the spindle a cross bar is fixed and secured by stays, and short pieces of chain are suspended from it, which drag the bottom of the copper when the spindle is turned round, and stir the hops so as to prevent their burning, which they would do if suffered to rest on the bottom. This apparatus, which is called the *rowser*, is suspended by a swivel at the top of the spindle, from a lever *f*, the opposite end of which is drawn down by a rack and pinion *g'*. This raises the rowser from the bottom of the copper, when it is not in use, and at the same time disengages the wheel *e* from its pinion, which is kept in continual motion by the engine. Cast iron braces *g*, *g* are fixed across the copper, to support the spindle of the rowser. In the top of the tube E is a safety valve, loaded with a weight *h*, to permit the escape of the steam if it should become so strong as to endanger the copper; and by the side of it is another, *i*, which opens, and admits air, if a condensation of the steam should produce a vacuum in the copper. The man holes are closed by lids which are quite steam tight, and can be quickly opened and shut. Their construction is shewn in Figs. 5 and 6; the former being a plan, and the other a section. In both of them AA is a ring of cast iron, which, after being turned in a lathe, and ground perfectly flat and true upon its upper surface, is fitted to the copper by a great number of small screws. The door BB is also of cast iron, and has a ring projecting from its under surface to drop into the ring to which the flat surface of the lid is fitted. The lid is hung by a joint D, which is very loosely fitted, and is kept down tight by the pressure of a strong screw *a*. This screw is held over the centre of it by a cross bar E, fixed to the ring A, by a joint pin at the end *f*, while the other end slips under a kind of staple. When the central screw is slackened, the bar can be turned about upon its centre *f*, to remove it from the lid, which can then be opened upon the joint D. A balance weight is applied to take off the weight of the lid, as shewn at Y, Fig. 4; and within the lid is a smaller one of brass F, Figs. 5 and 6, which is fitted in the same manner; and which is removed to introduce the thermometer, or a gauge, for the purpose of ascertaining the quantity of liquor in the copper, without the trouble of moving the great lid, which is only opened to allow men to go into the copper to clean it, while the upper man hole H is only used to put in the hops. The copper is filled by a pipe from the liquor-back, as before mentioned. The pipe R, Fig. 2, divides into two branches, each of which is provided with a sluice cock *m* and *n*, just before the branches enter the pan from the recess X. The branch *m* delivers its contents into the pan, but *n* turns down, and is soldered to the dome of the copper. The pan can be emptied into the copper by two valves *p*, *p*, Fig. 2, in the bottom of it, which are drawn by iron rods and levers reaching over into the recess X. In Fig. 4, T is a sluice cock, to draw off the contents of the copper into a copper vessel Z, from which a pipe runs to the mash tun, as shewn in Plate LXXVII. This pipe has a wire cage set over it, to prevent any thing getting from it into the pipe.

The introduction of the close copper into breweries, has led to a great saving of fuel, and has, in some measure, prevented the waste of the saccharum and virtue of the hops, which passes off with the steam from the old open copper, as was evident from the strong scent of those substances, which a large one diffused for half a mile round. In the close copper, the steam being passed through the liquor contained in the pan over the copper, the substances alluded to are, in a great degree, condensed and retained in the liquor, though not perfectly so. At the same time the liquor in the pan is heated, and being let down into the copper as soon as the other liquor has run out of it, it is quickly boiled; whereas it would have taken much time and fuel if it had been brought into the copper quite cold. We have been informed, that the first pan was placed over the copper, for the purpose of heating one liquor by the other, by Mr Goodwynne, about 1780; but the steam did not in this case pass through the water. Mr Bramah, about 5 years afterwards, built a copper at Harford's brewery, with a dome and steam pipes, as in Plate LXXIX., Fig. 3, except that the pipes F were hung by joints from the great central pipe, so as to rise and fall similar to an umbrella; and a float being attached to the end of each pipe, the steam always passed out under the same pressure of water, whether the pan was full or not, as the floats always kept the mouths of the pipes at the same depth beneath the surface; at the same time, this depth could be readily adjusted by altering the floats, so as to increase or diminish at pleasure the pressure of the steam in the copper. This construction having been found to succeed, has now become common.

Bramah's copper.

Mr Richard Hares took out a patent in 1791, for the construction of a steam head to the copper, such as is shewn in the Plate; but the patent was set aside, by a trial in the court of King's Bench, on the ground of not being a new invention. In the use of a large brewing copper, great attention is requisite, in taking care that the copper is never empty whilst the fire is burning; for in a very few minutes the bottom of an empty copper would be melted by the intensity of the heat. The fire may always be damped, by opening the fire door and the chimney doors immediately. The cock is opened, and the instant the brewer can see the bottom of the copper, he lets down the contents of the pan. For the same reason, it is proper that men should go down into the copper, and scrape away all the fur which adheres to it, from the stony matter contained in the water; for if that were suffered to accumulate for a few days, it would prevent the water from coming into actual contact with the copper, which would, in that case, be quickly melted or burnt through. The copper plates are not less than three inches thick in the centre of the bottom, and diminish to one inch thick against the flues. They are united by rivets two inches in diameter, and with heads five inches in diameter. When the copper wants repair, a new plate is put into its place while red hot, and hammered down, to fit the edges of the plates with which it is to be connected. The plate is then heated again, and holes punched through it in the proper places for the rivets, which are put in red hot while the plates are cold. They are introduced through the holes from the lower side; and a

PLATE LXXIX. Fig. 1—4.

Method of repairing the copper.

workman standing upon the grate, has a hand jack, which he screws up under the head of the rivet, to hold it fast in its place, and immediately three men within the copper batter down the end of the rivet with the utmost expedition. In such thick plates, it is almost impossible to get the joints quite close; but the contraction of the rivets in cooling, draws the plates together so forcibly, as to make them nearly tight, and the leaks cease as soon as the fire is lighted. The very great expence of these repairs, and the loss occasioned by all the works being stopped, render any form of the fire place, which tends to preserve the copper, of very great importance. An improvement in the construction of the fire places was made by Mr Woolfe, who applied it to the coppers at Messrs Meux's brewery, a drawing of which will be found in the *Philosophical Magazine*, vol. xvii. The description of an apparatus, which this gentleman erected at the same works for heating water, by the waste steam which passed off from the coppers, was published by Mr Nicholson in his *Philosophical Journal*, 8vo, vol. ii.

Dr Shannon's copper.

Dr Shannon, as we have already mentioned, took out a patent for an improved brewing copper, which is a cylinder, having its axis placed horizontal, with flues for the flame passing round it in the manner of a screw. The steam of the copper is to be condensed in a vessel for the purpose, and the product returned to the copper. For a similar method of condensing the volatile part of the malt and hops, a patent was taken out by Mr W. Ker in 1788.

Mr Jonathan Dixon has a patent for forming the various vessels in a brewery in cast iron, in the same manner as the cast iron mash tun, which we have described. It has been objected to this iron tun, that it permits the escape of the heat too quickly; a defect which would be easily remedied, by setting the vessel in brickwork instead of supporting it on iron columns. This very objection to the mash tun, is the most forcible recommendation of an iron cooler, where the object is to dissipate the heat of the contained fluid; and the wort would admit of being laid thicker, that is, to a greater depth, than in wooden vessels, in consequence of the iron transmitting the contained heat more quickly than wood; so that a smaller surface of cooler would be sufficient for a brewery; or if the same surface were allowed, the cooling might be more quickly performed. These coolers would be free from the great repairs required in wooden ones, and would not be cracked in hot weather.

Dr Shannon suggests many different forms of coolers in his treatise on brewing. They consist in general of serpentine passages, formed of thin metallic plates, which are to be immersed in cold water, and the wort to run through them, in order to be cooled down to the proper temperature for fermenting. The same principle has been put in practice at Mr Saukey's brewery, Maidstone, by a worm pipe near 800 feet in length, which is immersed in the water well, in the same manner as the refrigeratory of a still. The only objection to either of these methods is, that the sediment which the wort always deposits, more or less, in cooling, would become putrid, and taint the pipe; an evil which is not felt in distillation, as the spirit is perfectly free from any sediment. Dr Shannon, in his patent, proposes a more practicable expedient for cooling the wort, which is, to have the coolers with a metallic bottom, and a few inches beneath this, another formed of thin boards, between which a constant current of air is to be forced, by obliging all the air, which goes to the fires of the coppers and steam engine, to pass through this space, and take away the heat from the liquor.

Stop c

The great number of stop cocks which are required in the numerous pipes of a brewery, as shewn in Plate LXXVII., renders their construction a matter worthy of consideration, in so far as regards the expence of their first erection, and their subsequent repairs.

Sluice cock. PLAT LXXI Fig. 7

In Fig. 7 of Plate LXXIX., we have represented a sluice cock, where AA is a cast iron frame, having two pillars B rising from it, to support a frame C, which contains a pinion for raising the rack *a*, and drawing the slider D, which stops the bore of the pipe. A flat plate of cast iron is screwed against each side of the frame A, forming a thin box, in which the slider rises and falls. Each of these plates has a short pipe projecting from them, to connect with the pipe, which the sluice is intended to shut up. One of these plates is ground flat, and the slider D is fitted and ground against it, so as to slide freely, but to fit perfectly water tight. On the oppsoite side of the slider two steel springs *b*, *b* are bolted. The ends of these act against the other flat plate, in order to press the slider against its fitting, and keep it close. The slider D is connected with the rack by a smooth cylindrical iron rod attached to both, and passing through a stuffing box in the top of the frame A, which is fitted so closely round it with hemp, as to prevent the escape of any fluid by its sides. This kind of sluice cock is very generally used in breweries, as it is the least expensive;—an object worthy of attention, when the large brass cocks such as are sometimes used for coppers cost from £30 to £40, and the great weight and size of the plug causes such a friction, that it is difficult to open them with a lever of moderate length.

By Mr Rownt

As the sluice cocks are not sufficiently tight for several purposes, but particularly for the suction pipes of the pumps, unless they are constantly repaired, Mr Thomas Rowntree has made many stop cocks of the form shewn in Figs. 8 and 9, where AA are the flaunches for connecting the cock with the pipe, B a chamber, in the centre of which is a spindle *a*, passing through a stuffing box in the lid *b*, and having a handle *c* to turn it round. Upon this spindle a sector of brass *d* is fixed, and when turned about, it either closes or opens at pleasure the opening of the pipe. A piece of brass is screwed into the chamber for the sector to fit against, and they are ground together till they are perfectly tight, by which means the friction is not serious; and as the principal part is made of cast iron, the expence is not very great.

By M Bram PLAT LXX Figs

In Figs. 10 and 11, we have given two views of a cock, extremely useful in breweries, which was invented by Mr Bramah. In Fig. 11, A is a conical brass chamber, with three pipes B, C, D, Fig. 10. proceeding from it. The base of the cone is closed by a lid E, in the centre of which another pipe F is joined. Within the chamber a hollow conical plug is fitted, which can be turned round by the handle *a*, and which has a hole on one side of it; and when this is turned opposite to any of the pipes B, C, or D, a passage is opened for the fluid conveyed into the interior cavity of the plug from the pipe F. A cock of this kind answers the purpose of three or four in distributing the liquor which flows through F, in three or four directions. Fig. 12 represents another excellent stop cock by Mr Bramah. The pipe A, which conveys the liquor, (from the copper for instance) has the conical chamber B, containing the plug D screwed to it. From the side of this chamber the pipe C proceeds, and is opened when the hole in the side of the plug D is opposite to the end of the pipe. The advantage of this construction is, that the pressure of the fluid always tends to force the plug into its seat, so that no screw or rivet is necessary to hold it in; or, if these are applied by way of precaution, they need not be made tight. The cock, Figs. 10 and 11, is kept tight by the same means, as the fluid enters the base of the cone, and tends to press the plug into its chamber.

Fig. 6, Plate LXXVIII. is a simple and effectual substitute for a cock in many situations of a brewery, particularly at the bottom of the coolers, or any other back, for instance, the back 5, Plate LXXVI. from which the contents are admitted into the pan over the copper. A, is a brass valve seat, which has a conical valve *a*, exactly fitting the seat, and closing its aperture when shut. The seat is fixed down in the wooden bottom of the back, by small screws; and from the seat rises two iron bars, *d*, *d* uniting at top, and supporting a screw, which is turned round by a handle *e*. The shank *b*, of the valve *a*, has an opening through it, and above this the screw is tapped into it. This opening receives a cross bar of the frame *d*, which, at the same time that it sustains the lower pivot of the screw, prevents the valve shank *b*, from turning round with the screw, which will raise or lower the valve at pleasure.

Fig. 13, of Plate LXXIX. is a contrivance of Mr Bramah's, which at times may be found of great advantage in a brewery. It is a cock to be put in the great store vat for tasting the beer at various periods. An ordinary cock is driven into the cask, in the common way; but it sometimes happens that one of the hoops breaks, from the contraction of the iron in cold weather, or other causes, and falling down the vat, it strikes out the cock, so that the beer may run out for many hours before the accident is discovered. This cock too is always open to the workmen. Mr Bramah's tasting cock, is a brass tube, A, with a shoulder *a*, which is the only projection on the outside of the vat, and is held in by a nut *b*, screwed upon it on the inside of the stave B of the vat. In the end of the tube is a plug *c*, ground and fitted in, and having a hole in one side. The key D of the cock, which is bored through the shank, and also through one of the ends of the cross handle, being introduced into the cock, fits upon a square, a triangle, a circle, or any other figure, at the end of the plug; and when the key is turned round, so that the handle is upright, the cock is open, and the beer will flow through the handle as a spout. This cock cannot be opened without its key, which is always in the possession of the master brewer.

Apparatus for washing casks.
PLATE LXXVIII.
Fig. 7.

Fig. 7, of Plate LXXVIII. is a small apparatus, which, at Mr Goodwynne's brewery, is used for the purpose of supplying hot water, to wash the casks or buts in which the beer is sent away from the brewhouse. The water is drawn by a cock, from a copper on purpose, and by a short canvass pipe is conducted into the bung hole of the cask. The washing is performed by a man shaking the cask, and then pouring out the water. As the attendant cannot see the quantity of water which has run in before he shuts the cock, he constantly draws too much or too little, and thus wastes either the hot water, or his time.

The copper globe A, is made to contain the proper quantity of water which is brought from the boiler, by the pipe B, and can be admitted at pleasure, by the cock D. The water is conducted into the cask by a pipe E, which has a cock F so connected to the former cock by the rod *a*, that when the one is open the other is shut: a small air pipe *b*, goes from the globe, and rises to the same height as the water stands in the boiler, and is open at top. When D is open and F shut, the water from the boiler fills the globe, the air escaping by the pipe *b*. When the canvass tube E, is put into the bung hole of the cask, by turning the handle *e*, the cock F is opened, and the contents of the globe run into the cask, but no more; for D was shut at the same time. By this means a certain quantity of any fluid may be measured out. The object here proposed is so trivial, that we should not have noticed it, but the apparatus seems applicable to many other useful purposes in the arts, where a certain quantity of any article is required to be drawn off at a time. We have seen a similar contrivance, for measuring the corn for feeding horses: a square wooden tube was used instead of the globe, and small shuttles in place of the cocks.

Mr Bramah's vent peg.
PLATE LXXVIII.
Fig. 8.

Fig. 8, of Plate LXXVIII. is a section of Mr Bramah's vent peg, to be put into the head of a cask when the liquor is drawn off, in order to admit the proper quantity of air, to allow the liquor to run off. AA is a section of the head of the cask, in which a taper screw B is placed for fastening the apparatus. The upper end of the screw is of large dimensions, and turned out into a cup of a cylindrical form, with a stud or pin rising up in the middle. A hole is drilled through the centre of the peg, to communicate with the interior of the cask at *b*. The cavity surrounding the stud being filled with water, the cap, or thimble C, must be inverted, and dropped into the rabbet, which is turned in the top of the peg. Some small holes are drilled round in the cap at 1 and 2, to admit the air freely; and as the lower edge of the cup is immersed in the water round the stud, nearly to the bottom of the cup, the ingress or egress of the air will be prevented, except when the pressure of the air is augmented, by drawing the liquor out of the cask. This ingenious contrivance, will be found very useful in drawing the liquor from the cask, to prevent it becoming flat or vapid from a greater exposure to the air than is necessary.

Having thus given a brief description of the principal utensils used in a brewery, we shall now proceed to some general observations on the different processes of brewing, without reference to the numerous varieties of beer, which are generally manufactured.

CHAP. II.

Account of the various Processes employed in Brewing.

SECT. I. *Of Malt.*

malt.

THE nature of the malt, as well as the quantity used, has a most immediate influence upon the liquor which is brewed from it. Malt is of three different kinds, pale, brown, and amber; names derived from their different colours, which depend on the mode of drying the malt upon the kiln. Pale malt is dried with a slow fire, by degrees, and only just so far as effectually to prevent the future vegetation of the corn. Its colour does not materially distinguish it from barley. The malt kiln is a building of the figure of a large inverted pyramid, having a fire grate in its vertex. The base of the pyramid is covered by a floor, upon which the malt is spread to receive the action of the fire beneath, the smoke and heat of which pass through the floor: This floor is constructed of iron bars, supporting tiles, which have large holes made nearly through them, from the lower side, and then very small holes pricked quite through, so as to form an earthen grating. In the modern kilns, wire floors have been used, similar to sieves; and hair cloth spread upon them, has been employed for pale malt. These admit the heat to act on all the sides of every grain, and to dry it equally, without parching the outside. The fuel, for pale malt, is coke, made from Newcastle coals, which are thought to contain sufficient sulphur to render the malt of a light colour. Amber malt is, in all its properties, intermediate between pale and brown malt, which is rendered so, by being dried more rapidly, and with greater heat, so that the outside, and part of the flour, is in a measure charred. It is dried upon tiles, or close wire floors, or in some places upon iron plates punched full of holes, or upon cast iron plates. Any kind of cokes are used for brown malt; and wood is sometimes employed towards the conclusion of the drying, to make a quick fire, and *blow up the malt.* In this state the malt is considerably expanded, and will occupy a much greater space than before it came to the kiln.

Pale malt.

Brown malt.

The colour, and a great deal of the flavour of beer, depend on the malt from which it is brewed. Pale malt is used for fine ales, and pale beer; amber malt is used for brown ale and beer, and to mix with pale for brewing porter; and brown malt is used for porter; but as the latter has lost part of its profitable quality of yielding a strong and good wort, many of the London brewers have adopted the plan of brewing porter from mixtures of pale and amber, or from pale malt only; and in such cases they make up the flavour and colour of the liquor, by colouring malt made from burnt sugar, of which we shall speak in its proper place.

It is necessary, before the malt can be mashed with the greatest effect, to grind it, that the outward husk being broken, the water may penetrate into the interior part of the grain. Every grain should be divided, but not reduced to a fine flour; for in that state the action of the hot water tends to form a tenacious viscid paste, by melting the gluten of such parts of the flour as first come in contact with it, and this envelopes the remainder of the malt, so as to prevent the water from penetrating to extract the fermentable matters; and at the same time, the water which enters into the composition of the paste, will not leave the mash tun when the wort is let off, but a great proportion remains with it; so that malt *low ground* (that is fine), will not produce a wort either so strong, or so much in quantity, as when it is properly ground. The common method of grinding malt, is between millstones, in the same manner as flour, but the distance between the stones is made so great as not to cut the grain very fine, while at the same time they do not permit any of the smaller grains to escape without being cut. In order to prevent this, many of the London brewers have adopted the method of using a screen, as shewn in Pl. LXXVII. to allow the ground malt to pass through, while it separates the uncut grains, which are broken by being introduced between a pair of iron rollers, similar to those used for flattening iron or other metals. In other works, the rollers are employed instead of the millstones, and in this case it is impossible that any grains can escape unbroken. The external husks are thus rendered pervious to the water, and the violent pressure of the rollers consolidates the flour contained in the corn, so as to prevent the water from saturating it quickly. This will take place in a greater degree in pale than in brown malt; for the latter, from its high drying, becomes far more brittle than malt which is pale.

The millstones in common use, are of that kind of stone, called Cullen stones; a pair of which, three feet three inches diameter, will, with the power of about four horses, grind about 12 quarters, of eight bushels each, per hour. A pair of iron rollers, of about 27 inches in length and 10 inches diameter, will crush 13 quarters per hour, and require about the same power as the millstones. Some breweries have lately employed steel mills, of the same kind with those used for grinding coffee, but on a larger scale. A mill of this kind, of 10 or 12 inches diameter, and performing about 150 revolutions per minute, will grind six or eight quarters of malt per hour, in a very perfect manner. It cuts the grains in the same manner as the millstones; but the malt passing very quickly through the steel mill, the divided parts of the corn are not rubbed to flour, as in the millstones, by being so long under the action of the machine.

SECT. II. *Of Mashing.*

The object of this process is to extract from the malt all the saccharine matter, and a certain part of farinaceous substance; on the due proportion of which, the proper fermentation of the wort and flavour of the beer in a great measure depends. This is done by two, three, four, and sometimes five, repeated infusions of hot water; the heat of which being properly suited to the nature of the malt, will produce the desirable mixture of fermentable matters; and in this point the skill of the brewer is chiefly shewn, as from the variable nature of the malt it cannot be reduced to any absolute rule; but he must in all cases proceed, in a great degree, according to the existing circumstances.

Cold water will extract from the malt only a portion of those constituent parts which it is the object of the brewer to obtain; and on the other hand, boiling water, which is the greatest heat that can be employed, will have a tendency towards what is called *setting the goods;* and when applied to some kinds of malt, will actually produce this effect. This takes place, when the whole mass of malt in the mash tun mixes with a certain quantity of the water, and forms a pulp or paste, by dissolving the gluten contained in the malt, which is so viscous as to retain almost all the saccharum of the malt, and holds a great proportion of the liquor, so that it will not run out of the mash tun. The boiling liquor, therefore, will neither produce wort of a good quality, nor in any considerable quantity. Between these extremes of temperature, a proper medium must be sought. It should be so adapted to the malt, as to produce a sweet wort, possessing the colour of the malt from which it is taken, and at the same time transparent when in the underback. Many practical brewers form a judgement of the proper degree of heat, from the wort in the underback bearing a frothy head; but this must be considered as a vague and indefinite criterion. The proper degree of heat will give the strongest wort, and in the greatest quantity; for, if the heat is greater, though the strength of the wort is increased, a greater quantity of wort will be retained among the malt, in consequence of its tenacity. A heat too low will, indeed, produce more wort than the proper medium; but it will be deficient in the fermentable matter which it ought to have extracted from the malt, and, in consequence of this, the beer will be spiritless, and liable to turn sour if kept.

The process of brewing has, of late years, been greatly improved by the application of the thermometer, to determine the degree of heat proper for mashing; but it is extremely difficult to fix with precision what this should be, as it depends upon the combination of so many circumstances. The great advantage, therefore, of the thermometer appears to be, that, when the brewer has by experience succeeded well in a brewing, he may know how to produce the same effect another time. The circumstances to be taken into consideration are,

First, the quality of the malt, the manner in which it has been dried, whether brown or pale, and also the perfection of the malting, by which process the gluten contained in the barley is in part converted into saccharum; and the degree in which this takes place will have some effect upon the mashing heat. The danger of setting the goods wholly or partially, will be in proportion as the malt is well or ill-made, from its containing more or less gluten, in proportion to the saccharum; and, therefore, well made malts may be mashed at the highest heats. The heat in which malt has been dried is, by Mr Combrune, made the ground of a calculation to determine the heat of the mashing liquor. He states the lowest heat for drying malt to be 120 degrees for very pale malt, and the highest, which is brown malt, at 150; and he assumes as a principle, that the heat of the extracting liquor should always be in proportion to that in which the malt was dried.

Second, The manner in which the malt has been ground, operates as has been before stated.

Third, The quantity of water in proportion to the malt. This is necessary, because, by admitting the water into a large mass of grist, its temperature is of course diminished more or less in proportion to the quantity of grist, and its temperature at the time, which may be assumed the same as that of the atmosphere. It is observed, that the mixture of malt and water will not be exactly the same as the mean heats of the two, but rather higher, and this increase of temperature is greater in high dried malt than in pale malts: indeed, in some cases of brown malt mashed in twice its bulk of water, the temperature will be as much as 24 degrees hotter than the mean temperature of both water and grist.

Fourth, The quantity of malt which is mashed at one time must be considered; because a large mash tun will hold its heat much longer than a small one, and may therefore be mashed at rather a lower heat.

Fifth, The flavour and nature of the liquor to be brewed has some influence; as, whether it is for keeping or for immediate use; for, since the different constituent parts of the malt are soluble in different degrees of heat, it follows, that more of one and less of another may be extracted by a judicious management of the heat. As this is altogether arbitrary, however, no rule can be given for it, and it must depend upon the fancy of the brewer, or the taste of his customers.

Sixth, The number of mashes which are to be taken from the malt, and the purpose for which each is intended, are to be taken into the account. If the different worts are to be mixed together to produce only one beer, as in porter brewing, the object is then to make all the worts in some degree similar, or, at least, it is not the same, as when the first wort is intended for ale, and the subsequent ones for inferior liquors; for then the utmost is to be extracted from the malt at first, and the next mashes are only taken that no waste may be made.

Seventh, The time the liquor is intended to be kept has an influence upon the heat; for by extracting too much of those fecula which render the beer turbid, it will require a longer time to precipitate them. Indeed, from too low a heat, it sometimes happens that the liquor will ever remain thick and unpleasant; and, in proportion as the beer is intended for long keeping, the heat must be increased, otherwise it will have a tendency to become acid before it becomes fine.

It will at once be seen, that the degree of heat which depends upon the combination of so many circumstances, cannot possibly be fixed by any certain rule: the extremes may be stated at 145° and 190° of Fahrenheit's thermometer. The actual heat proper for some kinds of beer, we shall state in another place.

Process of mashing.

In the process of mashing, the hot liquor is let into the tun, beneath the false bottom; and as soon as it appears above the surface of the grist, the mashing machine is put in motion, and continues till the grist and liquor are thoroughly incorporated. It is then left at rest a certain time, before it is run off into the underback, and this time is called the *standing of the mash*, and varies with the nature of the liquor to be brewed. The first mash stands longer, and is taken at a lower heat than the second, which again bears the same relation to the third. After the mash has stood the proper time, the *tap is set*, that is, the cocks are opened to draw off the wort into the underback. The time which the goods are allowed to drain themselves of the wort, in this manner, varies according to the preceding circumstances. If the goods are glutinous, a longer time will be required for the *spending of the tap*, as the drawing off the goods is called. The wort should not be suffered to rest long in the underback, before it is pumped up into the copper pan, to be kept hot; and brewers who have not this convenience, are frequently troubled in their operations, from being obliged to hurry them in some stages, that the wort of a previous mash may not wait in the underback till its temperature is lowered; for this would produce a premature fermentation, called by the brewer *foxing*, and the beer produced from such wort will ever be nauseous and unpalatable.

Foxing.

Sect. III. *Of boiling the Worts.*

Reasons for boiling the wort.

The wort, after receiving in the mash tun the extract of fermentable matter from the malt, requires to be boiled with the hops, that it may imbibe the essential oil of those plants. Another object of the boiling is, to coagulate the excess of mucilage which is unavoidably extracted from the malt in mashing, for if this were suffered to remain in solution in the beer, it would never become fine, but would always be cloudy, in spite of the most powerful precipitants. The boiling hardens this mucilage in the same manner, probably, as the white of an egg acquires solidity by boiling; and for the same reason, perhaps, as albumen is one of the consituent parts of malt; the boiling curdles the mucilage, before suspended, and equally dispersed through the wort into distinct fecula, leaving the fluid between them clear and transparent. These fecula are afterwards deposited in the coolers, thrown out in the form of yeast in fermenting, and, lastly, in the lees of the beer, thus freeing it from matters which would otherwise have remained in solution. The heat which is given is that of boiling. In an open copper a greater heat than this cannot be given; but in the close copper, the heat is somewhat increased, by forming steam of sufficient elastic force to raise a column of water, of the depth of the pan. A considerable quantity of water is boiled off in steam, which tends to concentrate the wort, and render it stronger. It is by the quantity thus evaporated that some brewers form their judgment of the wort being sufficiently boiled. Others draw their conclusion from the transparency of the wort, or from its containing fecula. This is called *breaking* of the wort, or curdling. The duration of the boiling is very various among different brewers. It must always be continued till the breaking appears; and perhaps a much longer continuance of the boiling is injurious, for the fecula or flakes of coagulated matter are observed to become larger, the longer the process continues; and from an experiment of Mr Combrune, it appears, that, if these flakes are collected, and boiled in water, the extract will ferment, and yield a viscous liquor. Hence they contain a portion of the fermentable matter, and therefore should not be separated by boiling, farther than is necessary, reserving the minute separation of such matters from the beer to be effected by the fermentation, in the form of yeast and lees.

Thus boiling the wort too short a time, leaves in it more of the gross parts of the extract of the malt than can be thrown out by the fermentation; and at the same time the virtue of the hops will not be sufficiently extracted. On the other hand, too much boiling causes a waste of fermentable matter, by producing more fecula than is necessary for the former condition; and the hops, by being boiled too much, after having given out their agreeable essential oil, communicate a gross bitter oil, which is unfavourable to a sufficient fermentation for producing the requisite spirit in the beer. It will readily be seen, that the medium cannot be attained, without attending to the circumstances of the previous process of the mashing, and the nature of the malt, and also to the quantity and quality of the hops, and the *length of beer drawn*, that is, the quantity of beer intended to be produced from a certain quantity of malt. The greater the portion of the farinaceous matter which has been extracted from the malt, the longer boiling will be necessary to curdle it. This will happen from malt imperfectly made, or from too low heat for the mashing. The first wort is generally boiled a much shorter time than the succeeding one, that the hops may not be so much impaired at the first, but that they may yield sufficient oil to the second and third worts. One hour for the first wort, two for the second, and four for the third wort, are recommended for beers, which are intended to be kept twelve months, having a large proportion of hops, that is 12lb. to the wort produced by one quarter of malt, and which is intended to be fermented at about 40 degrees of temperature. For small beer only half an hour is necessary for the first wort; one hour for the second; and two hours for the third. The quantities to be evaporated during the boiling are equally various for different kinds of beer; and therefore we cannot say any thing of it in this place, further than that its extremes are from $\frac{1}{5}$th the quantity of wort to $\frac{1}{16}$th.

Sect. IV. *Of Hops.*

Hops contain a fine essential oil, which has an agreeable bitter flavour. They are requisite to preserve the beer from the acetic fermentation, which would otherwise take place immediately after the spirituous fermentation ceases. The addition of the hops checks the disposition to ferment in such a degree, that the beer may be kept a sufficient time in a state of slow fermentation, to acquire strength and spirit, and to precipitate the farinaceous matter suspended in it, without becoming sour. On this account, the quantity of hops which are put to the beer, depends upon the length of time it is intended to be kept before it is drunk, on the *length drawn*, and also on the heat at which the beer is intended to be set to work in the gyle tun. The hops are put in the copper and boiled with the first wort, and are again used to boil with the succeeding worts. The quantity is as various as the different kinds of beer. Twelve pounds to the porter produced from 1 quarter of malt is judged sufficient to preserve such beer for 12 months, when fermented at 40 degrees; but, in the heat of 60 degrees, double the quantity of hops will scarcely preserve the beer during the same time. For small beer to be fermented at 40 degrees, 3 lb. to the quarter will be sufficient; but at 60 degrees, it will require 6 lb. of new hops, or 6¾ lb. of old hops, which are such as have been kept one year, and have, in consequence of this, lost some of their good qualities; but this difference is not worthy of notice, when only small quantities are used. It ought to be observed, that small beer is not generally intended for keeping any considerable length of time. Some breweries, from the great space necessary to store their hops, have in some seasons, when they required a great stock, adopted a method of pressing the bags in a strong press to about ½ their original space, and confining them in this state by cords; a process which is thought to preserve them better than if they were unconfined.

Mr Long, in his patent dated 1790, has recommended the hops to be boiled or macerated in water, sufficient to cover them for 10 hours; at which time, the heat (increased by degrees from the beginning,) is to be only 175°. This gradually increasing heat is to be continued 4 hours longer, and made to boil slowly for the last ten minutes: the extract thus produced is to be let on through a cooler or worm pipe, into the gyle tun, where it is to be mixed with the first wort, which has been boiled a very short time without hops. The hops are to be boiled again twice, in order to make extracts for the second and third worts.

SECT. V. *Cooling.*

This operation is performed by spreading out the boiling wort in a thin sheet exposed to the action of the air, that it may be brought to the proper heat for working or fermenting. It is a great object, that the cooling should be performed as expeditiously as possible; for the taint of *foxing*, before mentioned, is otherwise in danger of overtaking the beer in this process, if it continues as much as 12 hours. The wort, therefore, should be laid at such a depth in the coolers, that they will cool it in about 7 or 8 hours to the temperature of nearly 60 degrees, which, generally speaking, is about the average temperature for pitching or setting to work. To effect this, the wort in summer should not be laid at a greater depth than one, two, or three inches; but in winter, it may be as deep as 5 inches. In the hot summer months the worts must be got as cold as the weather will permit; and it is found that the coldest period of the 24 hours is about 3 o'clock in the morning, at which time, therefore, they should be set to work. In the winter they may be let down at any hour when they arrive at the proper temperature.

The wort should not be suffered to remain in the coolers after they are sufficiently cold, or a slow fermentation may commence, from the sediment left in the cooler by a former process. This, which is called *setting the backs*, is very prejudicial.

SECT. VI. *Of Fermentation in the Gyle Tun.*

Use of fermentation.

From this process, the beer obtains its strength and spirit, by converting the sugar extracted from the malt, into alcohol and spirit, and separating the redundant part of the mucilage in the forms of yeast and lees. In this process, an immense quantity of carbonic acid gas, or fixed air, is given out from all parts of the fluid. During fermentation, the constituent parts of the wort are at first decomposed, and afterwards a recomposition takes place in a new order, causing the change above mentioned. The sweet taste of the wort disappears; it loses its viscidity, from the separation of mucilage and gluten, which takes place; its specific gravity is considerably diminished; and a spirituous and inebriating quality is given to the liquor. When the wort is let down at the proper temperature from the coolers, into the gyle tun or square, a requisite proportion of yeast is added to it, and in a short time the fermentation commences. Its first appearance is a white line or border on the surface of the liquor, commencing at the sides of the tun, and gradually advancing into the middle, till the whole surface is covered over with a white scum, formed of very minute bubbles of gas, which increase in size as the fermentation advances, and cover the liquor to a depth of several inches with a froth of yeast. The temperature of the fluid increases considerably; and during all this time, the rising of the bubbles of gas, causes an incessant sound and a great agitation of the fluid. Part of the bubbles burst as they arrive at the surface, and the film of yeast which enveloped them, sinks until it is borne up again by the ascending bubbles. These films form at first a yellow, and, as the process advances, a brown dirty covering to the head of yeast, giving it the appearance of rocks. In this state the fermentation is considered as at its crisis, and afterwards diminishes. The yeast, which was at first a thin watery substance, quickly melting down into a fluid, has now become viscid and tenacious, which is the cause of the increased size of the bubbles, as they will bear greater distension without bursting. When the head begins to sink, which it does, first in the middle of the tun, the fermentation is to be checked by *cleansing*, that is, dividing it into small casks, and allowing any farther yeast which it may produce, to flow off as fast as it is formed. The proper management of the fermentation intimately depends upon the temperature to which the wort is cooled, when the yeast is put to it. The violence of the fermentation is increased with the heat; and if this is too great, the process advances so quick, as not to be readily checked when at its proper stage, but will go on to produce the ace-

Signs of fermentation.

Fermenting heat.

tic fermentation either wholly or partially, before it has sufficiently precipitated the mucilage, or, in the language of the brewer, *purged itself*, and consequently it has an unpalatable mixture of acid from the excessive fermentation, and of bitter from the redundant mucilage. In the other excess, that is, too low a heat for the fermentation, the decomposition of the wort takes place; but this, not being succeeded by the proper reunion of the parts, produces an unpalatable half fermented liquor, containing a combination of sweet spirit and bitter, and sometimes an approach to putridity. The medium is to be sought for between 80 and 40 degrees of the thermometer; the exact temperature varying with the circumstances of the preceding operations, the temperature of the atmosphere, and the liquor which is intended to be produced. In some of these (as in strong pale ales), the object of the brewer is to form a beer of the greatest possible strength and spirit, very clear and fluid, of a fine light colour, without containing much of the vegetable flavour. Such liquor approaches to wine. In the other extreme, as brown ales and porter, a *fullness* of palate, deep colour, glutinous taste, and vegetable flavour, are produced, by retaining part of the farinaceous matter, and giving to it an agreeable taste by the fermentation, rather than expelling it totally, as in the first instance. In making the required varieties, in the manner of the fermentation, to meet these intentions of the brewer, the quantity and quality of the yeast employed, as well as the temperature, must be considered. The yeast produced from the fermentation of strong beer, is the most proper to effect that temperate and regular fermentation of the beer, which is described; perhaps, from the tenacity of its substance, it does not so suddenly communicate the gas it contains, to the fluid which it is intended to put in fermentation. The yeast of weak small beers should not be used, when the other can be procured; for, though its fermentable powers are slight, it is apt to act violently for a short time, and then cease, probably from the thin light-mucilage, of which the gas bubbles are formed, bursting as soon as they are put in, and communicating their contents to the wort.

Of yeasts.

Fermenting heats.

When the heat of the atmosphere is more than 60 degrees, the cool of the night must be chosen to put the wort to work. In lower degrees of the atmosphere, the wort must be set at a greater heat than that of the air; for, as the tendency to fermentation increases with the heat of the weather, it is necessary to correct this tendency, by putting the liquor to work colder in hot weather, and hotter in cold weather. If the air is at 30° of Fahrenheit, small beer should be pitched or set to work at about 70°; beer intended for keeping, at 56°; and amber, or glutinous ales, at 54°. When the air is at 50°, all these kinds of beer may be set to work at 50°. In the process of fermentation, the temperature of the wort is often increased as much as 10°; and it may in general be considered, that the wort will be 10° higher at the height of the fermentation than it was when first put to work, supposing the heat of the air continues the same.

Proportion of yeasts.

The quantity of the yeast has some effect on the degree of the fermentation: a greater quantity will increase the rapidity of the process, in the same manner as a greater degree of heat would, and *vice versa*; hence a greater proportion of yeast is required in winter than in summer. The quantity which will be required at 80°, will be only one-half of that requisite to produce the same effects at 40°. Small beer, not intended for keeping, when the temperature is as low as 40°, will require about eight pints of yeast to the extract of one quarter of malt; at 60° six pints; and at 80° only four points.

Beer intended to be kept ten or twelve months will not require so large a proportion. Six pints at 40°, five pints at 60°, and three pints at 80°, will be found sufficient. The fermentation in the gyle tun having advanced to that state when the head begins to decline, shews that the vinous fermentation is ended. If the beer is not cleansed just at this period, it will become *yeast bitter*, which gives it an unpleasant flavour, probably from the grosser parts of the yeast being absorbed again in the liquor. The time when these signs will appear varies with the fermenting heat. At 60° it will sometimes require forty hours for the fermentation, though at a greater heat twenty or twenty-four are enough. The liquor is now possessed of some spirit, but is still unpalatable, from the mixture of extraneous farinaceous matter; the wort having parted with nothing in the fermentation but carbonic acid gas. Though the mucilage of the yeast is thrown up in part, it returns again; but the mode of its existence is changed, from the chemical solution it had in the wort, to mechanical mixture: At least this change is partially effected, as is shewn by the turbid appearance of the liquor. If the beer were suffered to remain in the gyle tun, the acetous fermentation would take place, the spirit or alcohol at one time visible in the beer would be lost, and acidity produced. After the acetous fermentation, the beer, under certain circumstances, would produce vinegar, but not in general, for the wort intended for beer has too much of the farina of the malt extracted in the mashing; and the addition of the hops, if in sufficient quantity, will totally prevent it from becoming good vinegar, though it may acquire too much acidity to be drunk, and at the same time bitter, and perhaps putrid in some degree, from the early decomposition of some of its constituent parts; for the acetous fermentation is followed by the putrefactive, which effects a total decomposition of the beer, leaving a putrid disorganized liquor, unfit for any purpose.

Sect. VII. *O Cleansing.*

Use of cleans

The object of cleansing is to stop the fermentation at the proper period, which is effected by drawing off the beer into smaller vessels, usually small casks. This lowers the temperature; for, as the action of fermentation produces an internal heat in the liquor, it follows, that this heat will be diminished by dividing it into smaller quantities, when, by the casks exposing a greater surface to the external air, the heat is allowed to escape. Notwithstanding the diminished heat, the disturbance of the beer renews the fermentation, probably by incorporating with it the yeast which remained near the surface of the gyle tun. In cleansing, the cask being full, the head of yeast, which rises, flows off immediately at the bung-hole, thus relieving the beer of its dregs, and perfecting the production of spirit which was begun in the gyle tun. As the quantity of beer in the cask constantly diminishes, it is filled up again; and by this means no room is left for a head of yeast to float upon the liquor, but it must flow off and escape as fast as it is produced. This diminishes the tendency to fermentation, which ceases spontaneously in a few days, more or less, in proportion to the heat of the atmosphere; and the beer is ready for storing, and will be fit for the table when it has become quite fine. From what has been already mentioned, it will be seen, that it is of great consequence to keep the casks always completely filled. In the brewery (Plate LXXVII.) this is accomplished by an ingenious contrivance, which requires no attention. The cleansing batch, marked 8, Fig 2. is left with a quantity of liquor in it, after the rounds 9 9 are all filled, which is done by one pipe 10 communicating with them all; and therefore the liquor stands at the same level in all. A small square cistern is placed by the side of the batch, also communicating with the pipe, and a copper ball floats upon the surface of the liquor in it. This ball is connected by an iron rod, with a valve in the bottom of the batch, which, when open by the sinking of the float, admits the beer to flow into the rounds, till, by raising the surface of the liquor, the float closes the valve. The rounds have close heads, with a small square tube rising up about six inches from it, and having a spout to convey away the yeast. The liquor is adapted to stand some height in this tube, and thus, by means of the float, ensures that the beer shall never have a surface for a head of yeast to gather upon. This is a considerable improvement upon the common method, in which a great number of casks are put upon a frame called a stillion, with their axes placed horizontally, and the bung-hole upwards. They are filled by a hose from the squares; and a man is constantly going round among them, to fill them up as they work off. This method, independent of the expense and trouble, is not so perfect as the one above described. The content of the rounds 9 9, as drawn in the Plate, is too great to work the beer to the best effect, especially in summer. They may, however, be made much smaller, without altering the principle.

SECT. VIII. *On Tunning, or Storing.*

At the conclusion of the fermentation in the rounds, the beer is drawn off, and pumped into the store vats: This is the plan in the London breweries; but the country brewers bung up the same casks in which it is worked, and keep it in these until it is fit for the table. The immense quantities of beer brewed in London render this impracticable, and they make use of the store vats. Some brewers suppose, that it is better to keep the store in large bodies than in small ones, on account of the great pressure caused by such a depth of liquor; but a greater advantage probably arises from the equality of temperature which such large vessels preserve, not being so subject to be affected by those changes of weather which are so injurious to the beer, by suddenly exciting a slight fermentation in warm weather, and as quickly checking it in cold. To avoid this, the small casks should be stored in cellars beneath the ground, or the great store vats should be kept in large buildings, where the sunshine may have as little influence as possible. At Mr Whitbread's brewery, some years ago, two very large cisterns were made underground, and lined with stone and cement; and the beer was kept in these instead of the wooden store vats. They were designed by the late Mr John Smeaton, F. R. S. and executed under his direction.

Beer cisterns.

The beer, if well brewed, will become fine and transparent merely by keeping; but in London, the great capital required in the brewing trade, urges the brewer to send it out, to make a return *in the rough*, as it is termed, when cloudy, without allowing proper time for fining itself. At the same time they send with it a proper proportion of *fining*, which is isinglass dissolved in very sour beer, which they brew on purpose, without hops, from the wort of a fourth mash, taken after all the others. When the cask of beer reaches the innkeeper, he puts a proper proportion of the finings into the cask; and the gluten of the isinglass, mixed with the fecula floating in the beer, forms a net-work at the top of the cask, which gradually sinking down to the bottom, carries all the impurities along with it to the bottom of the cask like a filter.

Fining.

In London, the beer is drawn from the casks in the publican's cellar by a system of small pumps, which raise the liquor from four different casks up to one place, so that it can be drawn from any for them with equal ease. This gives great facility for the mixing of the different liquors; for, though porter is professed to be entire butt, that is, drawn from one cask, scarcely any of the London porter is so: The universal custom is, for the brewers to send the publican one cask of stale, and three, or sometimes four, of mild porter. The former is that which has an acid taste, from being rather weak and kept longer, and the latter is new. From these the publican draws such a mixture as will suit the taste of his customers.

Beer pumps.

Mild and stale porter.

SECT. IX. *On Colouring.*

Colouring is used to give a fine brown colour and a peculiar flavour to porter and brown beer. These liquors were formerly brewed from brown malt, and derived their colour from this circumstance; but experience has now pointed out a much more economical method. Brown and other high dried malts owe their colour and flavour to the heat which they receive in the kiln, scorching and partially charring the sugar and flour that they contain. This, at the same time, causes a very great waste of the fermentable matter, which could otherwise be extracted from them in the mash tun; but, by adding a small quantity of burnt or scorched sugar to the beer, the same colour and flavour may be obtained from pale malt, which is found to yield a far greater proportion of fermentable matter than brown malt.

On colouring.

Colour made from sugar.

The colouring is made in the following manner: One hundred weight of coarse brown sugar is thrown into a cast iron boiler, of a hemispherical figure, with one gallon of water. This is boiled, and kept constantly stirred, till it turns black, and comes to the consistence of treacle. The smoke rising from it is now set on fire, and this communicates to the whole, which is suffered to burn about ten or twelve minutes, and is then extinguished by putting on the cover of the boiler. While it is still hot, it is diluted with water, to bring it into a liquid state. Three parts of the sugar will make two of this colour. When it is to be used, it is put into the gyle tun in the proportion of two or three pounds to a barrel; but this entirely depends upon the colour of the malt from which the liquor is brewed, and the colour which the beer is intended to have.

Made from wort.

To avoid the prejudice which the public have generally entertained against the introduction of any matters into the beer excepting malt and hops, some porter brewers have of late used a portion of their richest first wort instead of sugar for making the colouring. This is concentrated by boiling it in an iron pan, and is burnt in the same manner as the above. It has some slight advantage over the sugar, as the burning of the farinaceous matter contained in the wort gives it an agreeable bitter. M. De Roche took out a patent, in 1809, for using the husks of the malt for colouring, by burning them to a coffee colour, and mixing them with the malt at the rate of 31 ℔ to a quarter of malt; or the water may be coloured before brewing, by infusing in it these roasted skins.

From malt husks.

We have now gone through the whole process of brewing; and shall conclude this article by giving the proportions of materials, the heats, &c. for brewing three different kinds of beer. The remarks hitherto made are to be considered as generally and chiefly applicable to brewing on a large scale; but to many of our readers who may be disposed to perform this operation for themselves, some directions may be serviceable. The same principles apply to both public and private brewers; but, as the one mashes perhaps only one quarter of malt, while the other mashes 100 or 150 quarters in one tun, it follows, that the loss of heat in the mashing must be much less in the former case than the latter. In the proportion of hops, the brewer on a large scale has also the advantage. In this case the liquor (porter in particular) is not always intended for keeping any longer than the brewer can obtain a sale for it. Transparency is produced by precipitants, as before mentioned: he gives it colour by colouring, and flavour by mixing mild and stale beer. The private brewer, on the other hand, leaves the beer to fine itself by age, which is always spoken of as its greatest recommendation; and finings are never used but as a remedy. This is, indeed, the grand point on which the difference turns; it is so great, that were the private brewer, in making beer to be kept, to follow the exact proportions which the other uses in *draft* beer, his beer could scarcely fail to become sour before it was fine and palatable, from having such a scanty portion of hops.

Private brewers.

SECT. X. *Method of Brewing Porter.*

This liquor is seldom brewed by private persons, and we have not been able to obtain any correct observations upon the process in the small way. We have indeed seen pamphlets which give receipts for porter, containing a number of heterogeneous ingredients, as treacle, liquorice root, Spanish liquorice, cocculus Indicus, salt of tartar, ginger, lime, cinnamon, lintseed, &c. But as we are certain, from actual observations, that no such materials are used in any of the large porter breweries which we have visited, and whose beer is esteemed as good as any, we do not think it proper to mislead the public by such receipts: What follows on porter, therefore, is to be considered as applicable when not less than 50 quarters of malt are used.

The liquor for the first mash should be heated in the copper to 150°, in the proportion of two barrels to each quarter of malt, which is to be an equal mixture of pale, amber, and brown malts. These are mashed about three-fourths of an hour; the liquor is then allowed to stand on the goods an hour. The top of the mash tun is next opened, to let off the liquor as quick as possible; and the top is to be left open till the next liquor is brought into the tun, that the goods may drain. During this the second liquor has been heating, and may, at two hours and three quarters, or three hours from the beginning, have acquired the heat of 160°; the quantity being one barrel to a quarter of malt. Mash this half or three-quarters of an hour; let it stand one hour; and then let it be run off in the course of half an hour more. At about five and one-half hours from the beginning, the third mash should be made at 180°; the quantity being one barrel to the quarter. Mash this half an hour; let it stand one hour; and tap as before.

A fourth liquor is seldom mashed; but if it is, it may be cold or blood-warm, as it is of no use but to make the sour beer for finings; and it is of little consequence how it is done. Some brewers use it for the first liquor of the next brewing; but this is not perhaps a good plan, as it often becomes foxed, and then it taints the whole brewing.

These worts are to be boiled with from 12 to 14 ℔ of hops to the quarter of malt, if the liquor is intended for keeping eight or twelve months; but, in the ordinary run of porter not intended for keeping, 5 ℔ may be sufficient. The first wort should be boiled one hour, the second two hours, and the third four hours.

The worts are now to be cooled down as expeditiously as the weather will permit, to about 60°, if the medium heat of the atmosphere is about 60°. If it is more or less, allowance must be made, as before directed. All the three worts are to be brought into the square together, and about five pints of yeast to the quarter of malt put in. The time of the fermentation, cleansing, &c. must be regulated by the signs before mentioned. The proportion of colouring is arbitrary, as it depends upon the colour of the malt.

SECT. XI. *Method of Brewing Ale from pale Malt, one part pale and three brown, at the length of three barrels per quarter at three mashes.*

1st, Mash two barrels per quarter, at 183° (170).* Mash three quarters of an hour; let it stand one hour, and allow half an hour to run off the wort.

2d, Mash one barrel per quarter at 190° (183). Mash three quarters of an hour; let it stand three quarters of an hour, and tap as before.

3d, Mash one barrel per quarter at 160° (160). Mash half an hour; let it stand half an hour; and tap as before.

The first and second wort may be mixed together, boiling them about an hour (1¼), with a quantity of hops proportioned to the time the beer is intended to be kept. The third wort should be boiled two and one-half hours. They may be all three mixed together at the heat of 60° or 65° in the gyle tun; or, if strong ale is desired, the first and second may be fermented separately from the third, which will be small beer. The fermenting, and the remainder of the process, is the same as what has been before detailed.

SECT. XII. *Method of Brewing Small or Table Beer.*

From pale malt, the first mash 170°, two barrels per quarter, stands on the goods three quarters of an hour in hot weather, or one hour if cold. Second mash 145°, at one and one-half barrel per quarter, stands half an hour. Third 165°, two barrels per quarter, stands half an hour. Fourth 130°, three barrels, stands two hours. The first wort to be boiled with 6 ℔ of hops per quarter, for one hour and a half; the second worts to be boiled with the same hops two hours; and the remainder three hours. The whole to be boiled as low as 55° if the weather permits, and put to work with about five pints of yeast per quarter. If the weather is too warm to get them down to 55°, a less proportion will be sufficient. The eight barrels of liquor first used will be reduced to six of beer to each quarter; one barrel being left in the goods, and another evaporated in boiling, cooling, and working.

Brewing.

It would carry us far beyond our limits to enter into many curious and useful investigations, of which no practical brewer should be ignorant: such as the quantities of liquor lost in the grains; evaporation; the expansion of water when hot; the heat generated in mashing and fermentation; the loss of liquor absorbed in the different vessels; the loss of heat from the liquor running into cold vessels, &c.; the proper choice of malt and hops; the use of the saccharometer, for ascertaining the specific gravities of liquors, &c. For these we must therefore refer our readers to the following authors: Combrune on the *Theory and Practice of Brewing*, a work which has gone through many editions; the last was published in 1804; Richardson's *Theoretic Hints on Brewing Malt Liquors*, 1784; and his *Statical Estimates of the Materials of Brewing, shewing the use of the Saccharometer*, 1784; Baverstock's *Hydrometrical Observations*, 1785; and Dr Shannon's *Practical Treatise on Brewing and Distilling*, 1805. From the latter, which is an excellent work, we have taken the hints mentioned in the methods of brewing porter, ale, and table beer, as we found them in many points corresponding with the practice of experienced practical brewers. See also a work just published, entitled, *The Practical and Philosophical Principles of making Malt, in which the efficacy of the sprinkling System is contrasted with the Herefordshire Method;* by John Reynoldson, Esq. (J. F.)

Authors.

BRIBERY, in law, is that offence which consists in the giving, or accepting, a reward for the purpose of biassing the receiver in the discharge of some public duty. The term is said to be derived from the French *bribe*, signifying originally a piece of bread, but coming afterwards to denote, generally, a *part* or portion of any thing; as, in the present instance, a part of the unjust gains likely to accrue from the corrupt conduct of the party bribed.

We have defined the offence as consisting, 1st, in *giving*, as well as accepting a reward; for truly the moral turpitude may be as great in the giver as in the receiver; and accordingly, the law of most countries, where bribery is at all punished, chastises both parties as equally as circumstances will permit. We have said, that it consists, 2dly, in giving or accepting a *reward;* under which term is understood not only every species of reward, but every *promise* or *hope* of it. This reward must, 3dly, be *for the purpose* of perverting the conduct of the receiver; for it is not necessary, to constitute the crime, that the perversion or bias should actually take place. The *giver* has done all he could on his part to effect his purpose; and the *receiver* by accepting the bribe, without disclosing the fact, and making the due exertions to bring the offender to punishment for even this *attempt* upon his honour, and insult to his character, manifests such a looseness, at least, and corruptibility of principle, that the law will not give him credit for actual purity of conduct. We have said, lastly, that the reward must be given for the purpose of biassing the receiver in the discharge of some *public duty*. In common language, the term is not thus limited. However private the employment and condition of the party may be in which the corrupt influence appears, it is still denominated bribery. Thus, one is said to be *bribed* to leave his master's service before the expiry of his agreement—to write an abusive

Bribery.

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* The numbers within parentheses are to be used when the operation is performed on a small scale.

Bribery, Brick.

anonymous letter—to commit a theft, &c. In law, however, the term is more restricted; and though the code of this and other countries will by no means overlook the instigator of private mischief, yet neither will it pursue him under the specific charge, nor punish him with the proper pains of *bribery*. But neither, on the other hand, is the offence confined, as is sometimes imagined, to corrupt conduct in the public function of administering law and justice to the community. The malpractices of judges, and inferior officers of the law, form no doubt the most striking, because the most pernicious species of the crime. But the proper guilt of *bribery*, may also be incurred in the exercise of other public duties—by a burgher in the exercise of his franchise of voting at an election of magistrates—by a candidate for a seat in parliament, as well as by the voter whom he has corrupted—by an officer of the customs or excise—a minister of state in the sale of offices or pensions, &c.; none of whom, though respectively exercising certain public functions, can with propriety be said to be in a judicative capacity.

The punishment of bribery is nearly the same in England as it is in this country, and varies in both according to the degree of the offence. In the former, by 11th Henry IV. it is punished, in the case of judges and officers of the crown, with forfeiture of treble the bribe, chastisement at the king's will, and dismissal from office for ever. In inferior offices, the punishment is fine and imprisonment. By the law of Scotland, the crime, in judges of the Court of Session, is, by 1579, c. 93, visited with infamy, loss of office, confiscation of moveables, and discretionary punishment in the person of the offender; and in inferior judges and other persons, the chastisement, partly by a variety of statutes, and partly by common law, is the loss of fame and office, payment of the party's costs, reparation of his damages, and other discretionary censure, as the magnitude of the offence may require. Though these, however, are the modes of punishment for cases of ordinary turpitude, yet where the consequences of the bribery are of peculiar atrocity, such as the destroying an innocent man's life by a gross and corrupt perversion of justice, the law in both countries, overlooking the charge of bribery, will visit the offender with the pains of the higher crime in which he has participated. See *Encycl. Method. Jurisprudence voce Corruption.* Blackstone's *Comm.* vol. vi. p. 139. Hume *on the Descrip. and Punish. of Crimes*, vol. ii. p. 209. Jacob's *Law Dict.* (J. B.)

BRIBERY AT ELECTIONS, &c. See PARLIAMENT.

BRICK, a kind of factitious stone, made of argillaceous earth, formed in moulds, and baked in kilns, or dried in the sun.

This substance is now in very common use as a material for building; and its importance, in many cases, as a substitute for stone, is generally acknowledged. It is lighter than stone, and not so subject to attract damp and moisture; and from the quantities that are now made in Britain, its manufacture has become a considerable object of revenue to the state.

The art of brick-making consists chiefly in the preparing and tempering of the clay, and in the burning of the bricks; and as the quality of the ware depends very much upon the right performance of these operations, we shall present our readers with a short sketch of the general process of this manufacture. The earth proper for making bricks is of a clayey loam, neither abounding too much in argillaceous matter, which causes it to shrink in the drying, nor in sand, which renders the ware heavy and brittle. As the earth, before it is wrought, is generally brittle and full of extraneous matter, it should be dug two or three years before it is used, that, by being exposed to the action of the atmosphere, it may be sufficiently mellowed and pulverised, and thus facilitate the operation of tempering. At any rate, it should always have one winter's frost; but the longer it lies exposed, and the more it is turned over and wrought with the spade, the better will be the bricks.

The tempering of the clay is performed by the treading of men or oxen, and in some places by means of a clay mill. If the operation be performed by treading, which is the common way, the earth is thrown into shallow pits, where it is wrought and incorporated together until it is formed into a homogeneous paste, which is facilitated by adding now and then small quantities of water; but the less water that is used, the substance of the clay will be more tough and gluey, and consequently the bricks will be smoother and more solid. This operation is the most laborious part of the process; but it is of essential importance, and therefore ought to be done well; for it is to the negligence of the manufacturers in this respect, that we are to attribute the bad quality of our modern bricks, which are often light and spongy, and full of cracks. Whereas, if the clay be properly tempered, they are hard, ponderous, and durable; much stronger and better fitted for every kind of building, than those made in the common way. This will appear very evident from the following experiment of M. Gallon. Having taken a quantity of brick-earth tempered in the usual way, he let it remain exposed to the air for seven hours, and then caused it to be moistened and beaten for the space of half an hour: the next morning the operation was repeated; and in the afternoon the clay was again beaten for fifteen minutes more; making the whole additional labour an hour and a quarter. The bricks made of this earth being dried in the air for thirteen days, and burned along with the rest without any particular precautions, were found to be not only heavier than common bricks, but also very different in strength; for on placing their centre on a sharp edge, and loading both the ends, Mr Gallon found, that while it took a weight of 65lb. at each end to break them; other bricks were broken by the weight of only 35 lb. The improvement in the quality of the article thus far exceeds the additional labour; and none would hesitate to give an additional price, since both the value and the comfort of our dwellings depend so much on the quality of the materials of which they are constructed.

The next part of the process is the moulding of the bricks. This is a very simple operation, and requires very little skill, unless it be to make the greatest number in the shortest time; and the day's labour of a handy workman, employed from five in the morning until eight at night, is calculated at about 5000. The clay is brought to the moulder's bench in lumps somewhat larger than will fit the mould. The moulder having dipt his mould into dry sand, works the clay into it, and with a flat smooth stick strikes off the superfluous earth. The bricks are then carried to the hack, and there ranged with great regularity one above the other, a little diagonally, in order to give a free passage to the air. The hacks are usually made eight bricks high; and wide enough for two bricks to be placed edgewise across, with a passage between the heads of each brick. In fine weather a few days are sufficient to make them dry enough to be shifted; which is done by turning them, and resetting them more open; and in six or eight days more they are ready for the fire.

Bricks in this country are generally baked either in a clamp or in a kiln. The latter is the more preferable method, as less waste arises, less fuel is consumed, and the bricks are sooner burnt. The kiln is usually 13 feet long, by 10½ feet wide, and about 12 feet in height. The walls are one foot two inches thick, carried up a little out of the perpendicular, inclining towards each other at the top. The bricks are placed on flat arches, having holes left in them resembling lattice work; the kiln is then covered with pieces of tiles and bricks, and some wood put in, to dry them with a gentle fire. This continues two or three days before they are ready for burning, which is known by the smoke turning from a darkish colour to transparent. The mouth or mouths of the kiln are now dammed up with a *shinlog*, which is pieces of brick piled one upon another, and closed with wet brick earth, leaving above it just room sufficient to receive a faggot. The faggots are made of furze, heath, brake, fern, &c. and the kiln is supplied with these until its arches look white, and the fire appears at the top; upon which the fire is slackened for an hour, and the kiln allowed gradually to cool. This heating and cooling is repeated until the bricks be thoroughly burnt, which is generally done in 48 hours. One of these kilns will hold about 20,000 bricks.

Clamps are also in common use. They are made of the bricks themselves, and generally of an oblong form. The foundation is laid with *place* bricks or the driest of those just made, and then the bricks to be burnt are built up, tier upon tier, as high as the clamp is meant to be, with two or three inches of *breeze* or cinders strewed between each layer of bricks, and the whole covered with a thick strata of breeze. The fire place is perpendicular about three feet high, and generally placed at the west end; and the flues are formed by gathering or arching the bricks over, so as to leave a space between each of nearly a brick wide. The flues run straight through the clamp, and are filled with wood, coals, and breeze, pressed closely together. If the bricks are to be burnt off quickly, which may be done in 20 or 30 days, according as the weather may suit, the flues should be only at about six feet distance; but if there be no immediate hurry, they may be placed nine feet asunder, and the clamp left to burn off slowly. Coke has been recommended as a more suitable fuel than either coal or wood for this manufacture, both with regard to the expence, and the proper burning of the bricks; for if this substance be applied, the flues or empty places of the pile, as well as the strata of the fuel, may be considerably smaller; which, since the interference of the legislature with regard to the measurement of clamps, is no small consideration; and as the heat produced by coke is more uniform and more intense than what is produced by the other materials, the charge of bricks has a better chance of being burnt perfectly throughout, so that the whole saving may be calculated at least at 32 per cent.

Mr Goldham observes, that bricks will have double the strength if, after one burning, they be steeped in water and burned afresh. "The excellency of bricks," says Mr Malcolm, in his *Compendium of Modern Husbandry*, "consists chiefly in the first and last operations—in the tempering of the clay, and in the burning of the bricks; and as every man who has occasion to use bricks, whether on his own estate, or on that of his landlord, cannot but be sensible of the great value of a perfectly dry house; and, as it is impossible a house can be dry if bricks are used which are insufficiently burnt, he will do well to consider whether it will be more advantageous to him in the end, to make use of the very best hard sound bricks, be the colour of them what they may, and be the cost of them what they will. Such bricks are easily known by their sound, and by their striking fire with steel." For a more minute account of the various processes of brick-making, we must refer our readers to that author, from whom much of the preceding information has been extracted.

Bricks are made in various forms; but those which are made for sale, and are in common use for building, are required, by act of parliament, to be not less than 8½ inches long, 2½ thick, and 4 inches wide. There are also square bricks, for pavement or facing walls; and cutting bricks, which are used for arches over doors and windows, being rubbed to a centre, and gauged to a height. Various improvements, however, have of late been made in the moulding of bricks; and as the use of this article is daily becoming more prevalent, they are now formed so as to suit almost every purpose in building. Among these improvements, the patent bricks of Mr Cartwright deserve particular attention. These bricks are formed with a groove down the middle, a little more than half the width of the side of the brick, leaving two shoulders, each of which will be nearly equal to one half of the groove. When these bricks are laid in courses, the shoulders of the first course fit into the grooves of the second, and the shoulders of the second fall into the grooves of the first, thus forming an indented line of nearly equal divisions. The grooves, however, ought to be somewhat wider than the two adjoining shoulders, to allow for mortar, &c. The construction of these bricks is perfectly simple; but the principle will be preserved, in whatever form of indenture they may be made to lock into, or cramp each other. Brick walls, constructed upon this principle, require no bond timber; one universal bond connecting the whole building, which can neither crack nor bulge out without breaking through the bricks themselves. This invention is also particularly useful in the construction of arches; and when employed for this purpose, the shoulders of the bricks and the sides of the grooves should be radii of the circle, of which the intended arch is a segment. It is, however, recommended, that if the arch be particularly flat, or applied in situations which do not admit of end walls, to have the shoulders dove-tailed, to prevent the arch cracking across, or giving way edgewise. In forming an arch, the bricks must be coursed across the centre, and a grooved side of the bricks must face the workmen. The bricks may be either laid in mortar, or dry, and the interstices afterwards filled up by pouring in lime-putty, Paris plaster, or any other convenient material. The obvious advantages of arches constructed upon this principle, are, that the same centre, which, whatever be the breadth of the arch, may be in no case many feet wide, may be regularly shifted as the work proceeds; and as they have no lateral pressure, they require no abutments to prevent their expanding at the foot, nor any weight upon the crown to prevent their springing up. They may be laid upon a common perpendicular wall, and if used in the construction of common buildings, they will not only preclude the necessity, and save the expence of timber, but will also afford an absolute security against the possibility of fire.

A new invention in the formation of bricks, by M. Legressier, has lately been announced in the *Archives des Decouvertes et des Inventions Nouvelles*, pendant l'annee 1809. The principle, however, is merely that of Mr Cartwright's, followed out to a greater extent than has perhaps ever been done in this country. M. Legressier proposes, that the bricks should be formed in seven different moulds, according as they are to be placed in the middle or on the exterior of the walls; in the bottom or on the top; in the arches or in the corners; and by the proper disposition of these bricks in the building, every pressure, either longitudinally or laterally, is resisted, in proportion to the strength of the indentures by which they are locked together. But as our limits will not admit of a detailed account of this supposed new invention, we shall present the reader with the original article.*

Besides the place bricks, and grey and red stocks, which are used in common building, there are marle facing bricks, cutting bricks, fire bricks, and floating bricks. The first of these are of a fine yellow colour, hard and well burnt; they are made in the neighbourhood of London, and are used in the outside of buildings. The cutting bricks are made of the finest kind of marle; and, as we have already observed, are employed in the construction of arches over windows and doors. Fire bricks, sometimes called Windsor bricks, because an excellent kind of them are made at Hedgesley, a village near Windsor. They contain a large proportion of sand, and will stand the utmost fury of fire, and are consequently used for coating furnaces, and lining the ovens of glass-houses. Clay for fire bricks is got at most great collieries, but particularly at Stourbridge, which produces the best clay for this purpose in England. Floating bricks are a very ancient invention: they are so light as to swim in water; and Pliny tells us, that they were made at Marseilles, at Colento in Spain, and at Pitane in Asia.† This invention, however, was completely lost, until M. Fabbroni, published a discovery of a method to imitate the floating bricks of the ancients.‡ According to Posidonius, these bricks were made of a kind of argillaceous earth, which was employed to clean silver plate. But as it could not be our tripoli, which is too heavy to float in water, M. Fabbroni tried several experiments with mineral agaric, guhr, lac-lunæ, and fossil meal, which last was found to be the very substance of which he was in search. This earth is abundant in Tuscany, and is found near Casteldelpiano, in the territories of Sienna. According to the analysis of M. Fabbroni, it consists of 55 parts of siliceous earth, 15 of magnesia, 14 of water, 12 of argil, 3 of lime, and one of iron. It exhales an argillaceous odour, and when sprinkled with water, throws out a light whitish smoke. It is infusible in the fire, and though it loses about an eighth part of its weight, its bulk is scarcely diminished. Bricks composed of this substance, either baked or unbaked, float in water; and a twentieth part of argil may be added to their composition without taking away their property of swimming. These bricks resist water, unite perfectly with lime, are subject to no alteration from heat or cold, and the baked differ from the unbaked only in the sonorous quality which they have acquired from the fire. Their strength is little inferior to that of common bricks, but much greater in proportion to their weight; for M. Fabbroni found, that a floating brick, measuring 7 inches in length, 4½ in breadth, and one inch eight lines in thickness, weighed only 14¼ ounces; whereas, a common brick weighed 5 pounds 6¾ ounces. The use of these bricks may be very important in the construction of powder magazines and reverberating furnaces; as they are such bad conductors of heat, that one end may be made red hot, while the other is held in the hand. They may also be employed for buildings that require to be light; such as cooking places in ships, and floating batteries, the parapets of which would be proof against red hot bullets. The turrets which were raised on the ships of the ancients, says M. Fabbroni, were perhaps formed of these bricks; and perhaps they were employed in the celebrated ship, sent by Hiero to Ptolemy, which carried so many buildings, consisting of porticoes, baths, halls, &c. arranged in mosaic, and ornamented with agates and jasper.

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* "M. Legressier a pensé qu'on pourrait perfectionner la fabrication des briques en leur donnant une forme particuliere. Il propose des briques a enclaves composées d'une enclave principale, et donnant sept moules differens, y compris les encoignures, les cintres et les plans circulaires. Ces enclaves forment les parties saillantes, et les entailles les parties rentrantes; l'une et l'autre sont á queue d'aronde ou á biseaux. Les divisions et les oppositions des enclaves et des entailles sont les mêmes, et correspondent ensemble; la coupe en diffre, en ce que les angles sont aigus sur les faces laterales pour former les queues d'aronde, tandis qu'ils son droits sur les faces d'assises, afin d'offrir les enclaves â biseaux.

Dans le systême de l'auteur, il y a des briques de plusieurs formes, suivant qu'elles doivent être placées au milieu de la maçonnerie, en premier lit, en dernier lit, sur les faces exterieures des murs, aux angles ou dans les parties courbes.

Lorsque ces briques doivent etre placées au milieu des murs, elles ont des parties saillantes et rentrantes sur leurs six faces; savoir, quatre a queue d'aronde sur les faces laterales, et deux a angles droits sur les parties inférieure et supérieure. Lorsque elles sont destinées a etre en premier lit, en dernier lit, ou disposées sur les faces exterieures des murs, les parties saillantes ou rentrantes, qui formeraient alors des inegalités inutiles, sont supprimées. Quant aux angles, une autre disposition dans les queues d'aronde y pourvoit. Pour les parties courbes, ces briques forment les coin, en conservant toujours leur réunion entr'elles.

Il resulte de ces dispositions qu'un mur construit en briques pareilles, apporte une résistance à se sèparer longitudinalement et lateralement, proportionnelle a la force des queues d'aronde.

L'auteur assure que ces briques s'opposent aux poussées, et previennent même les ecartemens; qu'elles ne peuvent permettre le tassement que d'une maniere egale sur tous les points d'une fondation; qu'elles procurent économie de matiere pour les pierres de taille et moëllons, economie de temps pour les transport et la taille de ces pierres, et enfin que la régularité de la jonction de ces briques dispense presque de se servir de plomb et de cordeau pour les poser.

Ces briques etaut fabriquées dans des moules en metal auront une precision parfaite qui ne permettra pas de les confondre, et ne sera pas alterée par le ciment; car on ne devra se servir pour les réunir que de chaux vive réduite a la consistance d'une bouillie."

† *Nat. Hist.* lib. xxxv. cap. 14.

‡ This small work consists only of 24 octavo pages, and was published at Venice, under the following title: *Di una singolarissima specie di mattoni ossia ritrovamento degli antichi mattoni gallegianti, dissertazione letta nella publica adunanza dei Georgofili de Firenze, l'anno* 1791, *dal* Signor Fabbroni.

Bricks appear to be of the highest antiquity; and, as we learn from sacred history, the making of them was one of the oppressions to which the children of Israel were subjected during their servitude in Egypt. The bricks of the ancients, however, so far differed from ours, that they were mixed with chopped straw in order to bind the clay together, and instead of being burned were commonly dried in the sun. Vitruvius recommended, that they should be exposed in the air for two years before they were used, as they could not be sufficiently dry in less time; and by the laws of Utica, no bricks were allowed to be used, unless they had lain to dry for five years. From Dr Pocock's description of a pyramid in Egypt, constructed of unburnt bricks, it appears that the Egyptian bricks were nearly of the same shape as our common bricks, but rather larger. Some of those he measured were 13½ inches long, 6½ broad, and 4 inches thick; and others 15 inches long, 7 broad, and 4¾ thick. The bricks used by the Romans were in general square; and M. Quatremere de Quincy observes, that in his researches among the antique buildings of Rome, he found them of three different sizes. The least were 7½ inches square, and 1½ thick; others 16½ inches square, and from 18 to 20 lines in thickness; and the larger ones 22 inches square, by 21 or 22 lines thick. Among the celebrated buildings of antiquity constructed of brick, were the tower of Babel, and the famous walls of Babylon, reckoned by the Greeks among the wonders of the world; the walls of Athens, the house of Crœsus at Sardis, and the walls of the tomb of Mausolus. The paintings, which were brought from Lacedæmon to Rome, to ornament the Comitium in the edileship of Varro and Murena, were cut from walls of brick; and the Temple of Peace, the Pantheon, and all the Thermæ, were composed of this material. The Babylonian bricks, which are in the possession of the East India company, and upon which Dr Hayes has lately favoured the public with a dissertation, are inscribed with various figures and characters, and are supposed by some to be a part of that brick work upon which Pliny tells us, that the Babylonians wrote the observations which they made of the stars for seven hundred and twenty years. See Fourcroy et Gallon, *Art du Tuilier Briquetier*; Jars *on making Bricks and Tiles*; Rozier *Introduction aux Observations sur la Physique, sur l'Histoire Naturelle, et sur les Arts*; Bergman's *Essays*; Nicholson's *Journal*, vol. ii. p. 498.; *Repertory of Arts*, vol. iii. p. 84.; and *Encyclopedie Methodique*. (L.)

Brick.

BRIDE. See MARRIAGE.

BRIDEGROOM. See MARRIAGE.

BRIDGE.

THERE are few operations of art in which mankind are more deeply interested than in what relates to bridges. The ingenuity and hazard involved in constructing them; the numerous advantages derived from them; their being from objects of utility, in many instances, raised into all the magnificence which science and power can exalt them; justify us in treating the subject at considerable length, and endeavouring to exhibit under one article, most of the material circumstances which are connected with it.

In order to accomplish this, we shall first, in a cursory manner, trace the history of bridges; secondly, state the theory and principles upon which the rules, which ought to guide the engineer, are founded; and thirdly, explain what relates to the practice of bridge building.

HISTORY OF BRIDGES.

Bridge. History.

THE construction of perfect bridges, being a very complex operation, cannot have taken place amongst a rude and uninformed people; and in the course of this discussion it will be seen, that this did not always correspond with the progress of the other arts, even in situations where the intercourse was great.

The most obvious and simple bridge is that formed by single trees thrown across small streams, or, in case of broader streams, by fastening the roots of a tree on each bank, and twisting together their branches in the middle of the stream. These must have frequently occurred by chance, and they fall within the comprehension of the hunter; accordingly Mr Park found even the latter mode practised on rivers in the interior of Africa.

The next step is not much more complex, for in a space too great for the beforementioned operations, few manual arts were required to form ropes of rushes, or leathern thongs, to stretch as many of them as were necessary between trees or posts on the opposite banks, and connect and cover them so as to form a slight bridge. The following accounts given by Don Antonio de Ulloa, will afford a distinct notion how these sort of bridges were constructed and used in the mountainous parts of South America. See vol. ii. page 164. London, 4th edit. 8vo.

" Over the river Desaguadero is still remaining the bridge of rushes, invented by Capac Yupanqui, the fifth Ynca, for transporting his army to the other side, in order to conquer the provinces of Collasuyo. The Desaguadero is here between eighty and a hundred yards in breadth, flowing with a very impetuous current, under a smooth, and as it were, a sleeping surface. The Ynca, to overcome this difficulty, ordered, four very large cables to be made of a kind of grass which covers the lofty heaths and mountains of that country, and called by the Indians, Ichu; and these cables were the foundation of the whole structure. Two of these being laid across the water, fascines of dry juncia and tortora, species of rushes, were fastened together, and laid across them. On these the two other cables were laid, and again covered with the other fascines securely fastened, but smaller than the first, and arranged in such a manner as to form a level surface; and by this means he procured a safe passage to his army. This bridge, which is about five yards in breadth, and one and a half above the surface of the water, is carefully repaired, or rebuilt every six months, by the neighbouring provinces, in pursuance of a law made by that Ynca, and since often confirmed by the kings of Spain, on account of its prodigious use; it being the channel of intercourse between those provinces separated by the Desaguadero."

Again, in vol. i. page 430: " When the rivers are too deep to be forded, bridges are made at the most frequented places. Of these there are two kinds besides those made of stone, which are very few: the former of wood, which are most common; and the latter of bujucos. With regard to the first, they choose a place where the river is very narrow, and has on each side high rocks. They consist of only four long beams laid close together over the precipice, and form a path about a yard and a half in breadth, being just sufficient for a man to pass over on horseback; and custom has rendered these bridges so natural to them, that they pass them without any apprehension. The second, or those formed of bujucos, are only used where the breadth of the river will not admit of any beams to be laid across. In the construction of these, several bujucos are twisted together, so as to form a kind of large cable of the length required. Six of these are carried from one side of the river to the other, two of which are considerably higher than the other four. On the latter are laid sticks in a transverse direction, and over these branches of trees as a flooring; the former are fastened to the four which form the bridge, and by that means serve as rails for the security of the passenger, who would otherwise be in no small danger from the continual oscillation. The bujuco bridges in this country are only for men, the mules swim over the rivers; in order to which, when their loading is taken off, they are drove into the water near half a league above the bridge, that they may reach the opposite shore near it, the rapidity of the stream carrying them so great a distance. In the mean time, the Indians carry over the loading on their shoulders. On some rivers of Peru there are bujuco bridges so large, that droves of loaded mules pass over them; particularly the river Apurimac, which is the thoroughfare of all the commerce carried on between Lima, Cusco, La Plata, and other parts to the southward.

" Some rivers, instead of a bujuco bridge, are passed by means of a tarabita; as is the case with regard to that of Alchipichi. This machine serves not only to carry over persons and loads, but also the beasts themselves; the rapidity of the stream, and the monstrous stones continually rolling along it, rendering it impracticable for them to swim over.

" The tartabita is only a single rope made of bujuco, or thongs of an ox's hide, and consisting of several strands, and about six or eight inches in thickness. This rope is extended from one side of the river to the other, and fastened on each bank to strong posts. On one side is a kind of wheel, or winch, to straighten or slacken the tarabita to the degree required. From the tarabita hangs a kind of leathern hammock, capable of holding a man; and is suspended by a clue at each end. A rope is also fastened to either clue, and extended to each side of the river, for drawing the hammock to the side intended. A push at its first setting off, sends it quickly to the other side.

" For carrying over the mules, two tarabitas are necessary, one for each side of the river, and the ropes are much thicker and slacker. On this rope is only one clue, which is of wood, and by which the beast is suspended, being secured with girths round the belly, neck, and legs. When this is performed, the creature is shoved off, and immediately landed on the opposite side. Such as are accustomed to be carried over in this manner, never make the least motion, and even come of themselves to have the girts fastened round them; but it is with great difficulty they are at first brought to suffer the girts to be put round their bodies, and when they find themselves suspended, kick and fling, during their short passage, in a most terrible manner. The river of Alchipichi may well excite terror in a young traveller, being between thirty and forty fathoms from shore to shore; and its perpendicular height, above the surface of the water, twenty-five fathoms."

A third mode of bridge building is, by constructing piers of stone at a distance to be reached by single stones or beams of timber; if used in shallow streams, and composed of rough stones, laid without mortar, it is likewise a very simple operation, and such as would readily occur to a very rude people; but if the stream was at all times deep and rapid, and the piers composed of hewn stone laid with or even without mortar, the case was very different; workmen must have previously been accustomed to quarrying, hewing, and transporting large stones, also building them in a regular mannner; working in metals, and preparing mortar, must have been known; and, from what will be detailed under the head of Practice, it will be seen, that in preparing a proper foundation for each pier, the union and experience of various arts are required; and that the society, in which works of this sort, of any magnitude, were accomplished, was far advanced, and had the commmand of much well-regulated labour. The bridge over the Euphrates at Babylon, appears to have been constructed after this last manner; and there are many in different parts of China.*

With respect to the fourth mode, obtained by constructing arches of stone between the piers. If we may credit the accounts given by the Chinese, they constructed bridges in this manner, many centuries before arches were known to the inhabitants of the western world. Those connected with their inland navigation are numerous.

From the accounts generally given, it is not easy to form distinct ideas of the dimensions or construction of the Chinese bridges, or to what extent they merit the appellations bestowed by travellers, of being great and magnificent. Duhalde informs us, that "the stone bridges are commonly built like ours, on large piers of stone capable of resisting the rapidity of the stream, and sustaining the weight of the arches, wide enough for the passage of large vessels. They are exceedingly numerous, and the Emperor spares no expence when the public good requires them to be built.

"Of these, there is one very remarkable at Fou-tcheou-fou, capital of Tou kien. The river over which it is built is half a league in breadth; it is sometimes divided into small arms, and sometimes separated by small islands; these are united in joining the islands by bridges, which make altogether eight furlongs or Chinese lys and 76 toises. The principal of these has alone above one hundred arches built of white stone, with bannisters on each side handsomely carved, upon which, at the distance of every ten feet, are placed square pilasters, whose bases are very large, resembling hollow barks.

"But that which excels all the rest is at Suen-tcheou-fou, built over the point of an arm of the sea, without which the passage would be sometimes dangerous, even in a boat. It is 2500 Chinese feet in length and 20 in breadth; it is supported by 252 strong piers, 126 on each side. All the stones are of the same bigness, as well those which are laid from pier to pier, as those which are laid crosswise, insomuch that it is difficult to comprehend how stones of such an enormous size should be placed in that regular manner, or even raised on the high piers on which they lie. After this, there is nothing of the kind worth mentioning."

The only conclusion to be drawn from the foregoing description of this work, which excels all the rest, is, that two rows of large stones or piers, (each row consisting of 126,) have been set up across the shallow mouth of a river or arm of the sea; that, along the top of these, other long stones have been laid horizontally, like wooden beams; and lastly, that long stones have been laid crosswise upon those longitudinal beams, in the manner of joists in carpentry, or more probably close together, composing a compacted bed or roadway. By dividing 2500, the total length in Chinese feet, by 127, the number of openings, it gives nearly 20 feet between centre and centre of the piers, so that after the thickness of the pier is taken away from the 20 feet, a moderate opening is left for the lintel to cover. The dimensions crosswise, correspond with the description as to the stones being of the same size, (at least as to length); for the breadth of the bridge is said to be 20 feet, and taking away the thickness of the two longitudinal beams, leaves the dimensions of the opening to be covered by the stones lying crosswise. It is therefore to the carrying from the quarry and raising stones of this magnitude, that the praise of ingenuity must be attributed; there being nothing else in the mode of construction which has a claim to refined science, or great progress in the mechanical arts. The danger to boats passing, must, no doubt, have arisen from the shallowness of the water, and the frequency and violence of the surfs.

From the following relation, extracted from the same work, there is reason to expect correct information. It is entitled, "An account of the Journey of the Fathers Boures, Fontenay, Gorbillou Le Compte, and Vesdelore, from the port of Ning Po to Pekin, with a very exact and particular description of all the places through which they passed, in the provinces of Tche-kiang, Kiang-nan, Chan-tong, and Pe-tcheli.

"It is in this agreeable place that the city of Chao King has its situation. In the streets are a great number of canals, which give occasion for such a great number of bridges. They are very high, and have generally but one arch, which is so slightly built towards the top, that carriages never pass over them, which makes a great number of porters necessary. They pass over these bridges by a kind of stairs, of very easy ascent, and whose steps are not more than three inches in thickness. There are other sorts of bridges, made of stones 18 feet long, laid upon piles in the manner of planks. There are many of these over the great canal very handsomely built."

Again, "About four leagues from Hang-tcheou we crossed a village called Tan-si. It is built on both sides of the canal, on which are also two quays, about 400 or 500 geometrical paces in length. They are formed of the same freestone which lines the sides of the canal. There are stairs for the conveniency of every house, which are much better built, and more uniform than those in the city. In the midst of the village is a fine bridge of seven large arches; that in the middle is 45 French feet wide; the rest diminish in proportion to the descent of the bridge. There are two or three great bridges of one arch only.

"We crossed a great village or country town, called Ovan Kiang King, of large extent. One part communicates with the other by means of a bridge of three great arches, very curiously built: the middle arch is 45 French feet wide and 20 feet high."

Of these arches, which are here termed large and great, we find the span to be only 45 feet; an extent which, in Europe, would not be honoured with those appellations.

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* In Fig. 1. of Plate LXXX. we have represented the probable steps by which the arch was nvented.

We have also heard of a bridge over a river named Laffrany in China, which joins two mountains together, said to be of one arch 600 feet span, and 750 feet in height; but having no distinct authority for this, and its being so very unlike to those described in Duhalde's work, we mention it merely as a matter deserving of more enquiry.

But it is of real importance to notice the description given by Mr Barrow of the mode in which some of the arches in China are constructed. "Each stone from five to ten feet in length, is cut so as to form the segment of the arch, and in such cases there is no key stone; ribs of wood fitted to the convexity of the arch, are bolted through the stones by iron bars fixed into the solid part of the bridge; sometimes they are without wood, and the curved stones are mortised into long transverse blocks of stone."

In Egypt and India, from whence the western world derived the rudiments of many sciences and arts, the construction of the arch was totally unknown; for the magnificent temples of the latter, and the splendid tombs of the former, were produced by cutting matter away in the manner of sculpture. There is no trace of the arch met with in the ancient works of Persia or Phœnicia; and even the Greeks, who created a school of architecture and sculpture, and carried it to the utmost degree of perfection of which it was capable, have a very doubtful claim to the knowledge of the arch. It is certain they never used it as an external feature of their temples, much less in the construction of bridges over rivers; and it has been observed, that the great Pericles, while he adorned the city of Athens with splendid edifices, never constructed a stone bridge over the small river Cephisus, although upon the most frequented road to that city. It is therefore to the Romans that the western world is indebted for this singularly useful application of architecture.

There is no certainty respecting the time when the Romans first used arches: If the Cloacae of Rome were really constructed in the time of the elder Tarquin, the use of arches must have then been well known; and from that prince's origin and connection, it is probable that they would be the labours of Tuscan workmen. It has been positively said by some, that the Romans received their knowledge of the arch from the Tuscans, who were at that time much farther advanced in the arts than their Italian neighbours. If this is admitted, the first knowledge of the arch is at least very intimately connected with Greece, the Tuscans being acknowledged as a colony of Dorians.

Roman bridges.

Whatever doubtful circumstances attend the claim to the invention of the arch, we know, from the best historical evidence, that the Romans first applied it to works of general use, as in forming aqueducts for conveying water to large cities, constructing bridges over rivers, vaulting magnificent temples, and in erecting monuments for recording the actions of their greatest heroes.

We at present consider only their bridges. At or adjacent to Rome, Gautier mentions eight bridges.

1. Pons Ælius, built by the Emperor Adrian, and named after him. It is said to have once had a cover of bronze supported by 42 columns. It is now called Sancto Angelo.

2. A triumphal bridge, the ruins of which are now seen in the Tiber. The emperors and consuls passed over this bridge when they were decreed a triumph.

3. Pons Janiculensis, now Ponto Sixtus, it having been rebuilt by Pope Sixtus IV. in 1475.

4. Pons Cestius, at present St Bartholomew. It was rebuilt by the Emperor Valentinian.

5. Pons Fabricius, now Ponto Caspi.

6. Pons Senatorius, at present Sancta Maria.

7. Pons Horatius formerly Sublicius, built of stone by Horatius Cocles; rebuilt by Emilius Lepidus; the ruins are still seen in the Tiber.

8. Pons Milvius, which is about two miles out of Rome upon the Flaminian way.

Palladio gives a description of the bridge of Rimini, built by the Romans also upon the Flaminian way, which has five arches; likewise that of Vicenza upon the Bachliglione, of three arches; and of one upon the Rerone, of three arches.

And Martinellis mentions a bridge near Narni, on the road from Rome to Loretto, built by Augustus. It consisted of four arches, the first 75 feet span and 102 high: the spans of the others were 135, 114, and 142 feet. This appears to be the most magnificent bridge the Romans constructed in Italy.

In the provinces the Romans built many bridges, some very magnificent. We shall instance two in Spain, both in the province of Estremadura. That of Merida is upon the river Guadiana. Don Antonio Ponz, in his *Viage de Espanâ*, says he found its length 1300 paces; Vargas reckons 64 arches. In the time of Philip III. one of the large arches towards the middle was destroyed by an inundation, on which account three or four adjoining were rebuilt in 1610.

But perhaps the most magnificent of all the Roman bridges, and one of the noblest monuments of antiquity, is, the bridge of Alcantara upon the Tagus, at the town of that name. The town has probably taken its name from that structure, as the word *alcantara*, in the Arabic, signifies a bridge. It consists of six arches: its whole length is 670 Spanish feet, and from the bottom of the river to the roadway the height is 205 feet. For these Roman bridges, see Plate LXXXII.

Plate LXXXII.

Besides these ancient bridges which still exist, or are correctly described, we have accounts of many others; as that of Darius upon the Bosphorus of Thrace, Xerxes upon the Hellespont, Pyrrhus upon the Adriatic Gulf, Cæsar upon the Rhine, and Trajan upon the Danube; but these were constructed for the temporary purposes of war. The descriptions are vague, some of them improbable, and they belong more to military than civil architecture.

The ancient aqueducts, which were magnificent, will be described under the head of INLAND *Navigation*.

From the destruction of the Roman empire, to the establishment of modern Europe, it is in vain there to enquire for the progress, or expect the improvement of bridge building. In this, however, we ought to except the fine works of the Moors in Spain, particularly the bridge of Cordova over the Guadalquivir, built by Issim, the son and successor of Abduel Akman, the first of the Moorish kings of Spain.

When the arts began to revive in Europe, it was chiefly towards religious structures that power and influence were directed. One singular instance occurs of enthusiasm being directed to the useful purposes of improving the passages over rivers. Gautier, upon the authority of Magna Agricola of Aix, says, that upon the decline of the second, and commencement of the third race of kings, the state fell into anarchy; and that there was no security for travellers, particularly in passing rivers, where violent exactions were made by banditti. To put a stop to these disorders, sundry persons formed themselves into fraternities, which became a religious order, under the title of Brothers of the Bridge. The object of this institution was to build bridges, establish ferry boats, and receive travellers in their hospitals on the shores of rivers. The first establishment was upon the Durance, at a dangerous place named Maupas; but in consequence of the accommodation arising from this establishment, the same place acquired the name of Bonpas. He relates further, that St Benezet, who proposed and directed the building of the bridge of Avignon, was a shepherd, and that he was not twelve years of age when repeated revelations from heaven commanded him to quit his flock and undertake this enterprize; that he arrived at Avignon just at the time the bishop was preaching to fortify the minds of the people against an eclipse of the sun, which was to happen the same day. Benezet raised his voice in the church, and said he was come to build a bridge. His proposition was accepted by the people with applause, but rejected with contempt by the magistrates, and by those who thought themselves wisest. As it was at that time an act of piety to build bridges, and Avignon being then a popular republic, the people prevailed, and every one contributed to the good work, some by money, and some by labour, all under the direction of Benezet, aided by the brothers. And he, by performing a great number of miracles, animated the zeal of every body. Upon the third pier was erected a chapel to St Nicholas, protector of those who navigate rivers. This was done after the death of Benezet, which happened in 1184. His tomb became celebrated for pilgrimages, where many miracles were performed. He had taken care to establish a conventual house, and a hospital, leaving the brothers to continue the work of the bridge.

This bridge, which was composed of 18 arches, was begun in 1176, and completed in 1188. In 1385, during the contentions of the Popes, some of its arches were destroyed; three others fell in 1602, from the neglect of repairing a fallen arch. In 1670, the frost was so great, that the Rhone for several weeks bore the heaviest carriages: when the thaw followed, the ice destroyed the piers; but the third pier, with the chapel of St Nicholas, has stood notwithstanding all these accidents.

Our admirable bridge saint, not the least useful of that once numerous class of enthusiasts, in accomplishing, under such circumstances, so difficult, valuable, and magnificent a work as the bridge of Avignon, has perhaps quite as just a claim to the power of performing miracles as most of the saints of his day; and it is not improbable, that from the influence of his tomb, and that of his mantle upon the surviving brethren, that the still greater bridges of Lyons of 20 arches, and St Esprit of 19, were accomplished. Parts of the elevation of those bridges are given in Plate LXXXIII.

Plate LXXXIII.

Perronet states, that in 1354 an arch of 150 French feet, or 160 English feet span, was built at Verona; and in 1454, one of 172 French feet, or 183.8 English span, and 66 French feet, or 70.6 English of rise from the springing, at Vielle-Brioude upon the river Allier in France. The last mentioned is the greatest span we know of for a stone arch.

Bridges in Italy.

In Italy there are many fine bridges. The peculiar situation of Venice has required a number far beyond what is to be found in any other city. The finest is the Rialto of 98½ feet span, and 23 feet rise. It was designed by the celebrated Michael Angelo, and erected between 1588 and 1591. Gautier states, that the numbers in the different quarters of the city are as follows, viz.

In the quarter of St Paul . . .	37
La Croix . .	35
Canal Regio.	75
Arsenal . . .	72
Isle du Juifs .	9
Derso Duro.	67
St Marc. . .	44
	339

Bridges in France.

In France, during the two last centuries, many fine bridges have been erected. The Pont Royal over the Seine at Paris, in 1685, from a design of Mansard. It consists of five arches. The centre one 77 French, or 82.3 English feet span; the breadth, including parapets, 56 French, or 59.9 English feet. The bridge at Blois, built from a design of the Sieur Gabriel, consists of 11 arches; the centre one 86 French, or 91.10 English feet span; the breadth over the parapets, 50 French, or 53.5 English feet.

Perronet gives plans and descriptions of sundry large bridges in France, constructed between the years 1750 and 1772.

Bridge at Orleans.

The first in point of time and magnitude is the new bridge upon the Loire, at Orleans. The ancient bridge, which consisted of 19 arches, was in so bad a state, that it was found necessary to construct a new one; for which a design, made by M. Hupeau, then first engineer of bridges, was preferred; and by that time such was the progress made in bridge building, that, instead of 19 arches, as in the old edifice, this new design consisted of only nine. The middle arch is 100 French, or 106.9. English feet span, and the rise or versed sine 28 French, or 29.11 English feet. The arches next the abutments are 92 French, or 98.3 English feet span, and rise 25 French, or 26.8 English feet: the others are in proportion. The breadth, including the parapets, 46 French, or 49.2 English feet. It was begun in 1750, and opened to the public in 1760. Nothing can exceed the simplicity and elegance of this bridge, as will appear by the elevation, one half of which is given in Plate LXXXIV.

Plate LXXXIV.

Bridge at Mantes.

Of the same beautiful simplicity of character is the design of the bridge upon the river Seine, at Mantes. It consists of three arches: the middle arch is 120 feet French, or 128.2 English feet span, and rise 36 French or 38.5 English feet; the two side arches are 108 French, or 115.4 English feet span, and rise 32 feet 6 inches French, or 34.9 English; the breadth, including the parapets, is 33 French, or 35.3 English feet. It was also designed by M. Hupeau; begun under his direction in 1757; and during that and 1758, raised to the level of the sixth course of arch stones: the work was then suspended on account of a war. It was recommenced in 1763 under the direction of Perronet, (M. Hupeau having died in that interval,) and was opened in 1765.

Bridge at Neuilly.

One of the finest of the French bridges, and the greatest work of Perronet, is that upon the Seine at Neuilly. It consists of five arches, each 120 French, or 128.2 English feet span, and 30 French, or 32 English feet rise; the breadth, including the parapets, is 45 French, or 48 English feet. It was begun in April 1768, and opened in October 1773; the masonry was completed in 1774; the roads, and other operations connected with this bridge, were finished in 1780. A great peculiarity in this bridge, well deserving the attention of engineers employed in similar works, is, that the soffits of the arches are shaped to suit the contracted vein of water, as formed in the entrance and exit of pipes. This is accomplished, by making the general form of the body of the arch elliptical, with a rise of 30 French, or 32 English feet, or $\frac{1}{4}$ of the span; but making the headers follow the segment of a circle, the versed sine of which is only $13\frac{1}{2}$ French, or 14.5 English feet, or about $\frac{1}{9}$ of the span. This, besides affording facility for the passage of flood waters, gives a great appearance of lightness to the whole fabric. The effect will be seen in the elevation, one half of which is given in Plate LXXXIV.

Plate LXXXIV.

In the bridges at Orleans, Mantes, and Neuilly, we find the rise of the arches to be between $\frac{1}{5}$ and $\frac{1}{4}$ of the span; but rendered confident by success, and desirous of giving a variety to his works, Perronet, in the bridge over the Oise, at St Maxence, consisting of three arches, each 72 French, or 76.10 English feet span, makes the rise only 6 French, or 6.5 English feet, or $\frac{1}{11}$ part of the span; also, instead of making the piers each a solid, right lined on the sides, he divides each pier into two distinct parts, with an open space between them, and composes each part of two columns united by a piece of plain wall. The deviation from former works of a similar kind is here certainly sufficiently distinct; but the propriety of this measure will be discussed under the head of Practice. This bridge was begun in 1774; the operations were suspended in 1775; they were recommenced in 1780; and the centers were struck in 1785. See Plate LXXXV.

Bridge at Maxence.

Plate LXXXV.

Bridge at Saumur.

The bridge built upon one of the arms of the Loire at Saumur, from a design of M. de Voglio, and executed chiefly under the inspection of L. A. de Cessart, may also be classed amongst the first of the French bridges. It consists of 12 elliptical arches, each 60 feet span, and 21 of rise; the piers are 12 feet thick, and the breadth of the bridge, including the parapets, is 42 French, or 44.9 English feet. It was begun in 1756, and finished in 1770.

Bridges in England.

The progress of bridge-building in England seems to have kept pace with the same art on the continent. The very singular bridge at Croyland in Lincolnshire, is said to have been built in 860. This date is likely to be correct; for Croyland Abbey was founded in 716, and the Abbey of Rumsey, in Huntingdonshire, in 974. (Bentham's *Essays.*) This bridge has three distinct approaches, formed by three segments of a circle, which meeting in the middle, compose pointed arches, their bases or abutments standing upon the points of an equilateral triangle.

It is worthy of remark, that the bridge of Avignon was begun under the direction of Saint Benezet in 1176, and that of London begun to be built of stone under the direction of Peter of Colchester, a priest, in the same year (1176.) The French "Brothers of the Bridge" accomplished their magnificent and useful work in 12 years, the labours of the English priest occupied 33 years; but this may be accounted for, by considering the interruptions which must be experienced in a river, where the tide rises twice every day from 13 to 18 feet. We may further remark, that as the constructions of the bridges of St Esprit and Lyons immediately succeeded to that of Avignon, so the bridge at Newcastle-upon-Tyne was built of stone in 1281, and that over the Medway at Rochester, consisting of 11 arches, much about the same time.

In London bridge there are now 19 arches, and it is 45 feet in breadth. For many ages there were houses along each side of it; but these were removed, the middle pier was taken away, and the space, including the two adjacent arches, converted into one arch of 72 feet span, in 1758. The remaining old arches are very narrow, and the piers enormously large, being from 15 to 25 feet in thickness above the sterlings. The passage over the bridge is very commodious, but in other respects it is very inferior to the before mentioned old French bridges. See Plate LXXXIII.

Many other old English bridges might be described, which, in conformity with the turbulence of the times, were generally fortified with gateways. It would be curious to trace their history, and delineate their features; but as the limits of our present article will not admit of this, we shall pass on to those of modern times, from which our readers will derive more useful information.

In 1636, the English Palladio (Inigo Jones) gave a design for a bridge, which was erected at Llanwst in Denbighshire. It consists of 3 arches, segments of circles; the middle one is 58 feet span, and rises 17 feet, the piers are 10 feet thick, and the breadth of the soffit of the middle arch is 14 feet. The arch stones of the largest arch being only 18 inches deep, the covering over them being little, and the approaches very steep, the bridge has a very light appearance.

The bridge over the river Thames at Westminster, being not only the greatest work of the kind in England, but having, in what regards laying foundations in deep water, and constructing centers for large arches upon navigable rivers, formed a new school for bridge-building in this island, we shall give a detailed account of it.

From reports made by Mr Labalye, (1751) it appears, that from 1734 to 1738, the time was employed in obtaining acts of parliament, and determining the precise situation and plan of this great work.

In 1738, the situation was finally determined to be a little way below New Palace Yard; the model made by M. Labalye was approved of, and he was appointed engineer. The intention at this time was to construct the piers of stone, and place a wooden superstructure upon them. This latter part was designed by Mr James King, who contracted to complete it in 12 months after the piers were finished for £28,000.

It was not till after many explanations and discussions, that Mr Labalye satisfied the commissioners, appointed by parliament, of the facility, economy, and security to be derived from laying the foundations of the piers in caissons or chests, instead of placing them upon piles in the ancient manner, cut off about the level of low water; or using batterdeaux or coffredams, formed around the foundations, and pumping the water from the inside, as had been performed in more modern times. This beautifully simple mode was, however, adopted, and the first stone of this great fabric was laid by the Earl of Pembroke on the 29th January 1739. During the same year, the commissioners directed Mr Labalye to prepare a design for a superstructure of stone, which he did, and it was approved of and adopted on the 31st January 1740: A liberal arrangement having been made with Mr King respecting his contract for the wooden superstructure, he immediately designed, for the stone arches, those excellent centres, which have ever since served as a model for works of a similar kind in England.

The works were carried on with great dispatch and success; the centre of the last arch was struck on the 25th July 1747, and, on the 14th November, the roads and streets were finished. A circumstance, however, took place, which prevented the bridge from being, at that time, opened to the public. The workmen employed to get gravel out of the bed of the river to cover the roadway of the bridge, finding some very suitable near the third pier, on the western side of the centre arch, they excavated considerably lower than the foundation, and too near it; the gravel then run from under the platform, and the pier sunk so much as to render it necessary to take down the two arches which rested upon it. The securing the foundation, rebuilding the pier and two arches, and replacing the parapets, pavements, and roadway, was completed, and the bridge opened to the public on the 18th Nov. 1750. This bridge consists of 13 large and two small arches; their forms are semicircular; the middle one is 76 feet span, and the breadth over the parapets 44 feet. See Plate LXXXVI.

About 10 years after the completion of Westminster bridge, another was begun to be erected between it and London bridge, now well known by the name of Blackfriars. The design was made by Robert Mylne. It consists of nine arches of an elliptical form; the middle one is 100 feet span, and the breadth across the bridge is 43 feet 6 inches. Mr Mylne benefited by the example of Labalye, and built the piers in caissons; but probably alarmed by the sinking of one of the piers at Westminster, he drove piles in the spaces upon which the bottoms of the caissons are placed. His arches being of wider span and of an elliptical form, his piers of proportionally less thickness, and having less masonry over the top of the arches, this bridge has a much lighter appearance than that of Westminster. It has been doubted, whether the slender detached Ionic columns are a proper accompaniment to such a work, and whether the divisions of the lengths of the rusticated headers of the arches are any improvement. His centers are evidently a copy of those used at Westminster.

The general style of this bridge bespeaks a mind emboldened by the success of his predecessor, to advance, though very cautiously, a step further in the practice of bridge-building. It is a work of great merit, and will not suffer by a comparison with any other constructed in the same age. It was begun in 1760, and completed in 10¼ years. See Plate LXXXVI.

PLATE LXXXVI.

Bridge at Perth.

At the same time that this noble work was carrying on at Blackfriars, a very fine bridge was constructing upon the river Tay, at the town of Perth in Scotland. It consists of nine arches; the middle one is 77 feet span, the width across is 26 feet, and the total length is 906 feet. It was designed and executed under the direction of Mr Smeaton, between 1760 and 1771. About the same time, and under the direction of the same gentleman, a bridge of no inconsiderable magnitude was built over the river Tweed at Coldstream, consisting of 5 arches, the middle one being 64 feet span; and also a bridge of seven arches over the river North Esk, near Montrose.

Bridge over the Esk.

North bridge at Edinburgh.

Previous to forming the plan of that magnificent extension of the city of Edinburgh, known by the name of the New Town, it was necessary to form a commodious communication with the central part of the High Street of the Old Town. This was accomplished by constructing a bridge over the deep valley called the North Loch. This bridge consists of three arches, each about 72 feet span, and two small arches each 20 feet span; the height from the present surface of the ground to the springing of the arches on the piers, is 17 ft. 6 in.; the arches being semicircular, rise 36 feet, the archstones are 2ft. 9in., and from the top of the archstones to the top of the parapets, is 9ft. 9in., making the whole height, from the surface of the ground to the top of the parapet over the middle arch, 65 feet; the breadth across the soffit of the arches is 42 ft. 3 in. From the arches to the banks on each side of the valley, the spaces are occupied by coach houses, stables, &c. formed under the roadway. The outline of the cornice and parapet, contrary to usual practice, is a curved line, bending downwards. This, in viewing the elevation, gives the appearance of the middle part of the bridge having sunk. Excepting the arches, which are fine and well executed, no part of the design claims much commendation; and we cannot help regretting, that the architect Mr Mylne, has failed in rendering this structure a suitable feature to the singularly fine situation which it occupies.

Bridges over the Thames & the Severn.

Several excellent stone bridges have lately been constructed upon the river Thames at Kew, Maidenhead, Henley, and Oxford; and not inferior to these are the bridges over the river Severn in Worcestershire and Shropshire. Five of these were designed and executed under the direction of Mr Gwynn, a native of Shrewsbury, and two by our countryman Mr Telford, the engineer.

The centre arch of the bridge in Blenheim Park, is 101 ft. 6in. span.

In 1762, a single arch was built upon the river Tees, at Winstone in Yorkshire, from a design of Sir Thomas Robinson, the span of which is 108 feet 9 inches.

Bridge over the Ouse.

A very fine bridge has been lately erected at Ferry Bridge, in the same county, upon the river Ouse: it consists of three arches, the centre one 65 feet span, the width within the parapets 28 feet 6 inches.

Bridge over the Taaf.

In South Wales, the bridge over the river Taaf, near Llantrissart, in Glamorganshire, is justly celebrated, both on account of its great span, and the singular circumstances which attended its construction. In 1746, William Edwards, a country mason, undertook to build a bridge at that place. He built one of three arches, and it was allowed to be well executed; but, being in a mountainous district, the torrents sometimes rise hastily to a height which must appear incredible to the inhabitants of flat countries. One instance of this sort happened after this bridge had stood about two years and a half, when the torrent carried along with it trees, brushwood, hay, and whatever of this kind lay in its way: these were entangled in the arches, and, causing the water suddenly to create a great head, the bridge was swept away. As William Edwards had given security to maintain the bridge for seven years, he immediately set about rebuilding it; but, in order to avoid future injuries from similar torrents, he constructed one arch, the segment of a circle of which the cord line was 140 feet, and the versed sine 35 feet. The arch was finished, but had not received the parapets, when the weight pressed in the haunches, raised up the crown, and destroyed the arch. This was in 1751. But William Edwards, possessed of an uncommon degree of fortitude, resolved to rebuild the arch of the same dimensions; and it appears he took his measures prudently; for we have been informed, by that excellent and respectable engineer Mr Jessop, who was then a clerk with Mr Smeaton, that Mr Edwards consulted that eminent man with respect to rebuilding this large arch. Mr Jessop does not recollect the advice which Mr Smeaton gave, but the bridge was rebuilt in 1755; the chord line and versed sine are the same as before, and the width across is eleven feet: in each haunch or spandrel there are three cylindrical arches quite across the bridge; the lowest is nine feet, the middle six feet, and the uppermost three feet diameter. These, to avoid weight, are of course left hollow; and Mr Evans, a native of Wales, who was afterwards chief engineer to the Royal Canal in Ireland, informed Mr Jessop, that, in addition to the cylinders being left hollow, the spaces between them were filled up with charcoal. From the steepness of the ascent on each side, and the narrowness across, this bridge is more remarkable as an effort of art than for the accommodation it affords.

Bridges in Scotland.

Of late years, the building of bridges has been carried to a very great extent in Scotland.

Bridge over the Teviot.

Upon the river Teviot, immediately above its junction with the Tweed, a very handsome stone bridge of three arches has been constructed from a design, and under the direction of Mr Elliot, an architect resident in Kelso. The middle arch is 65 feet span, and rises 17 feet; the arches are segments of circles, and the width over the parapets is 23 feet. There are coupled columns over the piers, which are quite insulated; and the points of the piers are in the shape of Gothic arches. It was begun in 1794, and finished in 1795. About 4 years after the completion of this bridge, another, very elegant one was constructed at Kelso, from a design of Mr Rennie, an eminent engineer. It is situated immediately below the confluence of the Teviot with the Tweed. It consists of 5 arches, each of 73 feet span, and 21 feet rise; they are of an elliptical form, and the road over them is level. Over each pier, and upon each abutment, are two small columns, and an entablature runs along the whole of the bridge. The columns are not insulated, being ½ columns only; the points of the piers are semicircular; the width over the parapets 26 feet. It was begun in 1799, and finished in 1803. The characters of those two bridges being rather gentle than bold, accord well with the beautiful scenery of the adjacent banks of those two fine rivers.

On the road from Berwick to Edinburgh, the Peas bridge erected over a deep dingle, is a bold work. It consists of four arches; the largest span is 55 feet, and the height of the bridge is 124 feet. The architect was Mr David Henderson of Edinburgh.

A large arch has been built at Aberdeen also over a dingle, through which there runs a small rill called the Den Burn; it forms a part of an improved approach to the city from the southwards. The magistrates had, in the year 1801, begun to construct a bridge of three small arches, and had laid the foundations of the abutments and piers for that purpose, under the direction of their then superintendant of city works, Mr Fletcher, when Mr Telford the engineer passing that way on the service of government, was desired by the magistrates to examine their intended bridge. On considering the excellent granite stone which was used, he prevailed with them to abandon the scheme of having three arches. At their desire he gave a plan of one arch of 150 feet span, being larger than any stone arch in Britain, and otherwise containing many singular features calculated to prove what could be performed with Aberdeen granite. But however desirous the magistrates were to exhibit the excellency of their favourite material, the expense of this plan much exceeded their funds. Mr Telford afterwards made a simpler design; but in order to save some masonry of the abutments which had already been executed, they got their inspector of the city works to reduce the span to 130 feet, of which dimensions it has been executed. The rise is 29 feet, and breadth across the soffit 43 feet. It is still a magnificent arch, though of smaller span than that of Mr Edwards over the Taaf. The difficulty attending the construction of a large arch here, was much lessened by its being placed on dry land.

A much more arduous task has been accomplished upon the river Dee, at Tongueland, near Kirkcudbright, where there is about 10 feet of water in the lowest state of the river, above which the ordinary spring tides rise 16 feet, and where, of course for a large arch, a trussed center was required. The design was given by Mr Telford; it is 118 feet span, and the rise or versed sine 38 feet. The spaces between the large arch and the rocky banks upon which it abuts, instead of being filled by earthen embankments, are occupied by small arches raised upon slender piers. The whole has a bold effect, especially during the flux and reflux of a high spring tide immediately under the bridge, when agitated by a strong westerly wind, and accompanied by a great land flood, tumbling down a rocky channel at some distance above it. See Plate LXXXVII.

A large bridge has been lately built over the river Spey, near Gordon castle, at Fochabers. It consists of four arches; the two middle ones are each 95 feet span, and the breadth over the parapets is 21 feet 6 inches. There being an even number of arches, a pier is brought into the middle of the river, and the architecture of the facade is feeble; still the structure does credit to the architect and builder, Mr G. Burn.

The finest bridge in Scotland is that which has just been built by the Duke of Athol, over the river Tay, at Dunkeld. There are five large arches and two smaller land arches; the middle arch is 90 feet span, and rises 30 feet, the width over the parapets is 27 feet 6 inches. The facade has castellated turrets over the piers and abutments; the outlines of the parapets and roadway is a curve only sufficient to carry off the water; the approaches to the bridge, the Duke has rendered very complete; and the whole forms a feature, suitable to the magnificent scenery which surrounds Dunkeld. The design for this bridge was made by Mr Telford. It was executed under his directions, and finished in 1809.

From the foregoing statements, it is evident that the progress of bridge building in Britain has of late years been great; but the effects, though considerable, have been distant and unconnected. Perhaps however, the greatest and most regular scheme for opening the general intercourse through a great extent of country, that has ever been voluntarily undertaken by a free people, was that which originated in 1802. Previous to this, the northern districts of Scotland, although in sundry parts intersected by military roads, were very imperfectly opened; for these had been hastily constructed, and frequently ill fitted for the purposes of civil life.

In order, therefore, to encourage the spirit of improvement which had strongly manifested itself in the northern parts of the island, a board of parliamentary commissioners was established, viz.

- The Right Honourable the Speaker of the House of Commons,
- The Right Honourable the Chancellor of the Exchequer,
- His Majesty's Advocate for Scotland,
- The Right Honourable William Dundass,
- Sir William Pulteney, Bart,
- Isaac Hawkins Browne, Esq.
- Nicholas Vansittart, Esq.
- Charles Grant, Esq.
- William Smith, Esq.
- Charles Dundas, Esq.
- John Rickman, Esq. Secretary,
- James Hope, Esq. Commissioner and Law Agent in Scotland,
- Thomas Telford, Engineer to the Board.

This Board, upon the application of individuals, or bodies of men, pointing out communications in the Highlands of Scotland, of public utility, and undertaking to defray a moiety of the expense, causes surveys and estimates to be made, and, if found to be truly useful, advances the other moiety from the public funds. In consequence of this, about sixty different roads have been surveyed, and a great proportion have either been already completed, or are now (1812) in a state of forwardness. Upon these roads there are bridges of different sizes, to the number of 1486, and several of no inconsiderable magnitude, viz.

Bonar bridge, of cast iron, 150 feet span, over an arm of the sea.

Dunkeld bridge, of 7 arches, viz. one of 90, two 84, two 74, two 22 feet.

Conon bridge, of 5 arches, viz. one 65, two 55, two 45 feet.

Ballater bridge, of 5 arches, viz. one of 60, two 55, two 34 feet.

Lovat bridge, of 5 arches, viz. one of 60, two 50, two 40 feet.

Wick bridge, of 3 arches, viz. one of 60, two 48 feet.

Alford bridge, of 3 arches, viz. one of 48, two 60 feet.

Potarch bridge, of 3 arches, viz. one of 70, two 45 feet.

Besides these, there are upwards of 60 bridges of one arch each, from 30 to 60 feet span.

Bridges in Ireland.

In Ireland, the city of Dublin has several fine stone bridges over the river Liffey, the principal of which are, 1. Queen's bridge, built upon the scite of Arran bridge, which had been erected in 1684, and destroyed in 1763. It was designed by Colonel Vallency, and was finished in 1768. It consists of three arches; the middle 46 feet span, the others 35 feet each; the piers are 7 feet thick, and the breadth between the parapets is 35 feet. 2. Essex bridge, which was originally founded in 1676, by Sir Humphrey Jarvis, in the viceroyalty of Arthur Earl of Essex; it being decayed, was taken down and rebuilt in 1753, from a design and under the direction of Mr George Semple, who published a very full account of the proceedings. It consists of five arches, one 58 feet span, three of 45, and one of 37 feet; the thickness of the piers on each side of the center arch is 6 feet, the breadth between the parapets 48 feet. 3. Sarah's bridge, consisting of an arch of 110 feet span, with a rise of 22 feet; the breadth between the iron railing 37 feet. This was built by Mr Stevens, an experienced bridge builder from near Edinburgh, in the year 1792. 4. Since that time Carlisle bridge has been rebuilt; it consists of three arches, the middle 50 feet span, the others 40 feet each; the thickness of the piers 10 feet, breadth between the parapets 63 feet.

There is also a very fine stone bridge over the river Lee, at Cork, built within these few years, with a draw bridge for ships at the north end of it.

TIMBER BRIDGES.

Timber bridges.

This historical sketch respecting bridges, has hitherto been confined to those constructedof stone, but other materials have been successfully employed. Bridges of great extent have been constructed of wood.

With the exception of drawings made by Palladio and others, from the descriptions given in Cæsar's Commentaries, of his bridge over the Rhine, we have no satisfactory account of any ancient wooden bridge. Of those of more modern times, there is one described by Palladio, said to be situated upon the Cismone, at the foot of the Alps, between Trente and Bassane in Italy. It is of very simple construction; the whole being suspended by the framing, which forms the sides; the opening between the abutments is 109 feet. Palladio also gives sundry designs for wooden bridges formed in different ways, some of which are supported by the sides only; and one is in the form of an arch. See Plate LXXXVIII. Gautier gives designs of his own, and one from Mathourin Jousse; the last mentioned consists of one passage over it for cavalry, and another for infantry, and is protected by a roof. But the boldest and most ingeniously constructed wooden bridge on the European continent, was that at Schauffhausen, in Switzerland.

PLATE LXXXVIII.

Wooden bridge at Schauffhausen.

We are informed that there was formerly a stone bridge at Schauffhausen, that the Rhine injured the piers, and that in the year 1754 three arches fell; that the depth of water immediately on the upper side of the old piers being, during summer, from 18 to 20 feet, and from 28 to 30 feet below them, the idea of rebuilding a stone bridge was abandoned, and that the old piers, excepting one near the middle, were taken away; that Ulric Grubenman, a common carpenter of Tueffen, produced a model for a wooden bridge, supported only by the abutments on the banks of the river; that after some hesitation on the part of the committee of Schauffhausen, his proposal was adopted, and that he completed this truly extraordinary work in the year 1758. The total length of the bridge was 364 feet, and its breadth 18 feet. It was eight feet out of a straight line, and the angle pointed down the river; the distance from the abutment next the town to the angle was 171 feet, and from the angle to the opposite shore 193 feet. This magnificent and ingenious bridge was destroyed by the French in April 1799. See Plates LXXXIX. and XC.

PLATE LXXXIX. and XC.

At Ruichenau.

About the same time that Ulric Grubenman was engaged at Schauffhausen, his brother John constructed a bridge of the same kind at Ruichenau, 240 feet in length; and some years afterwards they jointly erected one near Baden, 200 feet in length over the river Limmat.

At Baden.

We know of no wooden bridges in Europe of an extent equal to those constructed by the beforementioned ingenious men. But one upon nearly the same principles, and of 250 feet span, has been constructed over the Portsmouth river in North America, by a Mr Bludget. Yet, though of inferior magnitude, several upon principles equally simple and effective, have been erected upon rivers in Scotland by James Burn, of Haddington, in East Lothian. The largest is over the river Don, about seven miles from the city of Aberdeen, upon the road which leads from that place to Banff; the extent between the abutments is 109 feet 3 inches, and the breadth 18 feet. The frames which support the roadway are composed of short pieces of timber, but instead of being elevated above the level of the roadway in order that it may be suspended from them, they here support it after the manner of stone voussoirs. This bridge was erected in 1803. See Plate LXXXVIII.

In North America.

In Scotland.

There is an elegant wooden bridge in the park at Wotton, a seat of the Marquis of Buckingham, constructed precisely upon the principle of one given by Palladio. The span of it is 87 feet, the versed sine 13, and the breadth across 20 feet.

Small timber bridges, being, in all countries abounding in wood, so obvious a means for crossing streams, it is impossible to trace their origin and progress; and those consisting of rows of piles driven into the bed of a river, and supported by common trussings and bracings, being found in most countries, and being familiar to every body, it is only necessary, in what regards them, to refer to the Plates, and to what is said under the head of Practice.

Iron Bridges.

In Britain, of late years, the application of iron having been greatly extended, and practical mechanics having been also brought to much perfection, that valuable metal has been used in the construction of large arches over rivers.

The first cast iron bridge was erected upon the river Severn, about two miles below Coalbrook Dale, and between the villages of Madely and Broseley, in the county of Salop. The form of the ribs or intrados is nearly semicircular, the span being 100 feet 6 inches, and the rise from the level of the springing plates to the soffit at the middle is 45 feet, the height from the ordinary low water to the springing plate is about 10 feet, making the whole height from the low water to the soffit 55 feet. This bridge was constructed by Abraham Darby; it was cast at the Coalbrook Dale founderies, and erected in 1777. The design was bold and well executed; it formed a new æra in bridge building. The banks of the river adjacent to the bridge are exceedingly high and steep, and composed of alluvial matter which slips over the points of the coal strata. The effect of this operation not having been sufficiently provided against, some years ago, the top part of one of the stone abutments was pressed in a few inches, and of course raised up the iron work about the middle of the arch. Steps have been since taken to secure the western abutment; but the other, by having valuable houses built close up to it, is more entangled, and it may in time suffer from that cause; but the iron work has not been the least affected by the weather, or the intercourse over or under the bridge during 34 years. See Plate XCI.

The next cast iron bridge in point of time, was likewise erected upon the river Severn, about three miles above the former, at the expence of the county of Salop. Here the banks being low, Mr Telford, as county surveyor, under whose direction it was built, introduced the principle of suspending the roadway by two large ribs, one on each side of the bridge. The span is 130 feet, the versed sine of the ribs which bear the covering plates is 17 feet, the breadth across the soffit is 18 feet, and the height from ordinary low water to the soffit is 34 feet. The Coalbrook Dale Company performed both the masonry and iron work by contract, and it was finished in 1796. The eastern bank of the river is composed of matter similar to that which injured the abutments of the former bridge; but here, the foundations being placed upon rock, and the masonry made of a wedge form behind, the whole has continued perfect during 15 years. See Plate XCI.

The third iron bridge, in regard to time and progressive increase of magnitude, is that erected upon the river Wear, at Sunderland, in the county of Durham. It is likewise the segment of a circle, the chord line being 236 feet, and the versed sine 34 feet: the height from the surface of ordinary low water to the soffit is 100 feet. The merit of having this bridge, instead of the ferry over the river, is chiefly due to Rowland Burdon, Esq. The iron work was cast at the founderies of Messrs Walkers, at Rotherham, in Yorkshire, and was erected under the direction of Mr Thomas Wilson. It was opened for general use in August 1796, and forms a magnificent feature and a very convenient passage in that part of the country. See Plates XCI, XCIII.

The progress of this new species of bridge building was bold and rapid, setting out from a point, which arches constructed with stone seldom reached, that is to say, 100 feet span, extending next to 130, and from thence to 236 feet. Former experience was left far behind, and a principle introduced, to the practical operation of which we can at present assign no limit; since a design still bolder than any of the foregoing was projected, when a proposition was made by a committee of the House of Commons, for rebuilding London bridge. Mr Telford presented a plan of one arch of cast iron, the chord of which was 600 feet, and the versed sine 65 feet. This plan met with the approbation of the committee, and was by them submitted to the investigation of twenty persons, most eminent in Britain for scientific knowledge or practical skill. Their reports justified its being adopted; but a rapid succession of political events, have hitherto prevented it from being carried into effect.

Iron bridge of 600 feet span proposed over the Thames

Two very neat cast iron bridges, each consisting of one arch of 100 feet, have been built over the river Avon, at Bristol, under the direction of Mr Jessop, the engineer; and one, 150 feet span, has been designed by, and is now building under the direction of, Mr Telford, over an arm of the sea, upon one of the Highland roads, in the county of Sutherland. See Plate XCIV.

Iron bridges at Bristol.

Plate XCIV.

An iron bridge 85 feet span, has been built over the river Witham, at Boston, in Lincolnshire, designed by Mr Rennie. See Plate XCIV. (γ)

At Boston. Plate XCIV.

Part I. THEORY OF BRIDGES.

The construction of a magnificent stone bridge is justly looked upon as one of the greatest performances of the masonic art: for if we compare the enormous weight of a great arch, with the strength which the cohesion of the firmest cement can give, we readily admit, that it is only by the nicest adjustment and balancing of its parts, that they are hindered from instantly falling to pieces.

Though there can be little doubt that the Romans and latter Greeks had paid some attention to this subject, from the beautiful specimens of their architecture, which exist even in our times; yet in none of their authors, either practical or scientific, is the smallest light afforded us respecting the principles upon which their practice was regulated.

The architects of the middle ages, who constructed those great cathedrals that are still the ornament of the chief cities in Europe, and the delight of the architectural antiquary, seem to have fondly indulged in the balancing of arches. They were without doubt directed by maxims, which had been elicited from a varied and extensive practice; but, whatever these were, they are to us unknown. None of these architects, though many of them were men of learning, seem ever to have committed to writing, either the history of any such erection, or the principles by which its construction was regulated. Nay, this knowledge seems rather to have been carefully kept secret, and regarded as a sort of mystery; a craft, which was only to be communicated to the *brethren*, whose experience and skill had already qualified them to be initiated into the mysteries of the sublime degree.

Theory of Bridges.

It does not appear, that a knowledge of this subject could be acquired otherwise than by experience. The mathematical sciences were then little known; and we may see from the construction of the bridges of that age, that the priests, who were the only architects, have had in their eye rather the successive vaulting of a Gothic cathedral, than to have originally considered of the best way of forming a permanent and convenient road. It was only about a century ago, when Newton had opened the path of true mechanical science, that the construction of arches attracted the attention of mathematicians. Since that time, volumes have been written respecting the equilibrium of arches. It has been found one of the most delicate, as it is one of the most important applications of mathematical science. Yet, with all due deference to the eminent men, who have prosecuted this subject, we are much inclined to doubt whether the greater part of their speculations have been of any value to the practical bridge builder. He is still left to be guided by a set of maxims derived from long experience, and as yet little improved by theory. In truth, his works seldom fail even where they differ farthest from the deductions of the theorist; and at all events, he finds that a much greater latitude is allowable than theory seems to warrant. He is therefore surely excusable

Theory.

in doubting of the justice of such theories, at least until they are more consonant to the approved practice.

A new theory of arches proposed.

It is our intention, in the present article, to point out a new mode of considering this subject, to which, with great diffidence, we request the attention of the intelligent practitioner. It may indeed still be deficient, if not in some respects erroneous. But it will, we think, have this merit, that of being readily apprehended, and easily applied, without requiring much previous scientific information. Indeed though we highly value the sublime geometry, we are inclined to think that the unnecessary parade of calculus in the application of science to the arts, has been one of the chief causes of the dislike, which many able practical men of our country have shewn to analytical investigation.

Common theory of equilibration.

Nevertheless, as many of our readers are well qualified to comprehend, and will naturally expect that we should point out, the modes of investigation, usually pursued in this interesting subject; we shall previously, and in as succinct a manner as possible, endeavour to lay before them the commonly received theory of equilibration. From which, having cleared away the useless rubbish, if we can extract any proper materials, we may, like œconomical builders, make good use of them in our future structure.

Catenarian curve proposed by Dr Hooke.

The first thing like a principle that we meet with is in the assertion of the eminent Dr Hooke, that the figure into which a heavy chain or rope arranges itself, when suspended at the two extremities, being the curve commonly called the *catenaria*, is, when inverted, the proper form for an arch; the stones of which are all of equal size and weight.

PLATE LXXX. Fig. 2.

Now, as this idea, strictly just, has been very generally adopted, and affords some useful hints, it may be well worth while to examine it. Let A, B, Fig. 2. be a string or festoon of heavy bodies, hanging by the points A, B, and so connected, that they cannot separate although flexible. These bodies having arranged themselves in the *catenaria* ACB, conceive this to be turned exactly upside down. The bodies A and B being firmly fixed, then each body in the arch ADB, being acted on by gravity, and the push of its two neighbours with forces exactly equal and opposite to the former, must still retain its relative position, and the whole will form an arch of equilibration.

This arch, however, would support only itself; nay, a mere breath will derange it, and the whole will fall down. But if we suppose each spherule to be altered into a cubical form, occupying all the space between the dotted lines, the stability will be more considerable. And as the thrust from each spherule to its neighbour is in a direction parallel to the tangent of the arch at the point of junction, it is obvious, that the joints of our cubical pieces must be perpendicular to that, so as to prevent any possibility of sliding.

Our arch is now composed of a series of truncated wedges, arranged in the curve of the *catenaria*, which passes through their centres; and we are disposed, with David Gregory, to infer, that when other arches are supported, it is only because in their thickness some *catenaria* is included.

We might pursue this subject a great deal farther, by investigating all the useful properties of the *catenarian* curve: but, in our opinion, this is at present unnecessary. This curve is, indeed, the only one proper for an arch consisting of stones of an equal weight, and touching in single points, but is not at all adapted to the arch of a bridge, which, independent of the varying loads that pass over it, must be filled up at the haunches, so as to form a convenient road-way. In this case, some farther modification becomes necessary. The *haunch* E of the arch ACB, bearing a much greater depth of stuff than the crown, it must be so contrived as to resist this additional pressure. Every variation of the line FGH, or *extrados*, will require a new modification of the curve ACB, or *intrados*, and the contrary. Accordingly, M. de la Hire has suggested a good popular mode of investigating this subject. Let it be required to determine the form of an arch of the span AB, and height CD, proper for carrying a road-way of the form FGH. Mark off, upon a vertical wall, the points A, B, C′, inverting the required figure: Suspend from A, B, a uniform chain or rope, so that its middle may hang a little below the point C′, and dividing the span A B into any number of equal parts, and drawing the perpendiculars *a b*, *c d*, &c. suspend from the intersections *e*, *f* bits of chain *e b*, *f d*, &c. so trimmed, that their ends may fall on the line of road-way; and it may be observed, that as those pieces, which hang near the haunch, will bring it down, the crown C will thereby be raised into its proper position.

All will now do, provided that the sum of the small pieces of chain has to the large one, A C′B, the same ratio which the stuff to be filled into the haunches has to the whole weight of the archstones; the depth of which must of course be previously determined. But, if this is not the case, it will be easy to calculate how much must be added to, or subtracted from, the small chains, in order to obtain this proportion. This being equally divided among the small chains, will give a road-way very nearly parallel to the former. The curve will evidently be a perfect curve of equilibration, and extremely near the one wanted. And this whole process is so easy, that it may be gone through in a short time by any intelligent mason.

But although this mechanical way of forming an equilibrated arch be founded upon principles sufficiently just, and be perhaps the simplest and best way in which the practical builder could form the original design of such an arch, yet as it affords no general rules that may be applied to the construction of arches, we proceed to consider the same subject in a mathematical point of view.

And first, then, in the semicircular polygon, as it is called, Fig. 4, where weights are hung on the thread A C′C C″B, which bring it into the position ACB, we have at each angle three forces in equilibrio. Wherefore, by the principles of statics, they are to one another as the sines of the opposite angles; that is, the tension rC is to the tension lC, as sine lCW is to sine rCW, but the tension from C to l is the same as from C′ to r. Also sine lCW is the same as sine r'C′W′, since these angles are supplementary, CW, C′W′ being parallel; therefore the tension rC is to the tension r'C′, as sine r'C′W′ to sine rCW. *Or, the tension* *in each part of the chord is inversely as the sine of its inclination to the vertical.*

Again, we have as sin. d C l : sin r C l :: tension rC : tension dc$=\frac{r\text{C}\times\sin.r\text{C}l}{\sin.d\text{C}l}$; but as r C is inversely as sine r Cd, therefore tension d C is as $\frac{\sin.r\text{C}l}{\sin.r\text{c}d\times\sin.d\text{C}l}$. Now, let there be an unlimited number of weights hung from the chord, and indefinitely near each other, our polygonal thread becomes a curve, Fig. 5. being in fact the curve of equilibration adapted to the weight which depends from it. The angles r C d and l C d become r' Cd and l' Cd, which are supplementary, and have equal sines, wherefore the product of these sines is the square of either. Also, as the sine of r C l or r C r' is as the curvature, or reciprocally as the radius of curvature, we have tension d C, or weight on C, inversely as rad. curv. × $\sin.^2$ inclination to vertical.

This tension, in the present case, is usually produced by the gravity of the superincumbent materials, and may be measured by the area contained between two indefinitely near vertical lines, EF, ef, Fig. 5; but while the distance Ee is constant, the area Fe will diminish with the sine of EFe, as Ee becomes more upright. To countervail this, we must enlarge the depth EF in the same proportion as sine eEF diminishes. And, therefore, we have EF inversely as rad. curv. × $\sin.^3$ eFE. *That is, the height of the superincumbent matter must be inversely as the radius of curvature, into the cube of the sine of the inclination of the curve to the vertical.*

This, then, is the leading principle of the commonly received theory of equilibration. The mode in which we have derived it is concise, but we trust it will not be found the less clear, or the less easily apprehended.

Let us proceed to apply the theory to some practical cases.

If the arch be the segment of a circle, then the radius of curvature is the same throughout, the height will be inversely as the cube of the sine of inclination to the vertical. And from this we derive the following very simple construction, for describing the equilibrating extrados of a circular arch, and which the reader, who has examined this subject, will find much easier than those commonly given.

At any point D, draw the vertical Dd, and DF from the centre C; then laying off D a equal to the thickness at the crown, draw the perpendiculars ab, bc, cd successively, Dd is the vertical thickness at D, or d is a point in the extrados.

For it is evident, that Da : Db :: Db : Dc : Dc : Dd, because of similar triangles; therefore Da : Dd :: rad. $\sec.^3$ aDb, or inversely as radius to cube sine abD. Now Da is the thickness at crown, and Db is therefore the thickness at D. Figure 7 is constructed in this way, and may serve as a specimen of the equilibrating extrados for a semicircular arch. By reversing this operation, we may find the thickness at the crown corresponding to a given thickness at any other point. And here we may observe, that as D approaches the extremity B of the semicircle, the line Dd rapidly increases, until at the point B it is of an infinite length. But indeed this must evidently be the case with every arch which springs at right angles with the horizontal line; for the thrust of the arch should be resisted by a lateral pressure, and no vertical pressure can act laterally on a vertical line.

Theory.

We may also observe, that since the extrados or upper outline descends first on each side of the crown, and then ascends with an infinite arc, there is, for any thickness of the crown, a point on each side where the upper edge of the extrados is on a level with that on the crown. Thus, if BD$=30°$, its sine is half the radius. Da is therefore $=\frac{1}{8}$ of Dd, so that if Vv=Da be made $\frac{1}{14}$ of VC the radius, we have the point d at the same level with V. Between this point, however, and the crown, there is a considerable depression, which is increased if the crown be made still thinner. On the other hand, if it be made thicker, the horizontal line drawn through the crown cuts the extrados much nearer the middle of the arch. It appears, therefore, that the circle is not well adapted for the purposes of a bridge, or a road, where the roadway must necessarily be nearly level; for no part of the extrados of the circular arch will coincide with the horizontal line. There is indeed a certain span, with a corresponding thickness at the crown, where the outline differs least from the horizontal; that is, an arch of about 54 degrees, with a thickness at the crown about $\frac{1}{4}$ of the span. But that is far too great for practical purposes.

Fig. 6.

We may, however, extend the construction just given, even to those arches that are formed of portions of circles differing in curvature. For the equilibrating extrados being first constructed for that portion of the arch in which the crown is, as far as the vertical line passing through the contact of the neighbouring curves, the thickness of the crown must be supposed to be enlarged, in proportion to the diminution of the radius of curvature, or the contrary, and, with this, proceed as before along the succeeding branch of the curve. This will, indeed, cause an unsightly break in the extrados, for which we shall not at present pretend to find any other remedy, than using materials of a different specific gravity.

Those who wish to examine this subject farther, may consult Emerson's *Fluxions*, or Hutton's *Principles of Bridges*. We shall only observe here, that the extrados of the ellipse, and of the cycloid, resemble that of the circle, having an infinite arc on each side at the springing; and indeed this, as has already been observed, is a general rule for all those curves which spring at right angles to the horizon. In the parabola, the extrados is another parabola exactly the same, only removed a little above the other. In the hyperbola, the extrados is another curve, which approaches the interior arch towards the springing. None of these curves, therefore, can, with propriety, be employed for the arches of a bridge, though there may be cases where a single arch might with propriety be formed into a conic section.

The catenaria, which has been much spoken of as the best form for an arch, has an extrados, the depression of which, below its crown, at any point, is to the depression of the curve in the same vertical line, in a constant ratio. This ratio is that of the constant tension at the vertex, to the same tension diminished by the thickness or vertical pressure in the crown. If the vertical pressure be less than the tension, the extrados falls below the horizontal line; if greater, it will rise above it.

Mathematicians finding the circle and other common curves so little adapted to the arch of a bridge, which has a horizontal roadway, have, in the next place, endeavoured to solve the converse of the problem, and give a rule for finding the intrados or figure of the arch, which have the exterior curve a horizontal line.

This problem can only be resolved by calling the fluxionary calculus to our aid. It is a case of the more general one to find the intrados, when the extrados is given; and being the most useful case of that problem, fortunately admits of a solution comparatively easy.

Method of finding the intrados when the extrados is given.

Plate LXXX. Fig. 8.

We have already seen, that the load DC is inversely as rad. curv. × sine ^{3} inclination to vertical. Calling therefore, as usual, the abcissa $VE=x$, $CE=y$, $VC=z$, we have $cf=\dot{x}$, $fe=\dot{y}$, $Cc=\dot{z}$; and since $Cc:cf::$ rad.: sin. inclin. at C; therefore the load DC is inversely as rad. curv. × $\frac{\dot{y}^3}{\dot{z}^3}$. But, as is well known, the rad. of curvature $=\frac{\dot{z}^3}{\dot{y}\ddot{x}-\dot{x}\ddot{y}}$; therefore, by multiplication, DC is inversely as $\frac{\dot{y}^3}{\dot{y}\ddot{x}-\dot{x}\ddot{y}}$, that is, directly as $\frac{\dot{y}\ddot{x}-\dot{x}\ddot{y}}{\dot{y}^3}$, or as $d\left(\frac{\dot{y}}{\dot{x}}\div\dot{y},\right)$ and is equal to $d\left(\frac{\dot{y}}{\dot{x}}\times\frac{C}{\dot{y}},\right)$ where C is a constant quantity, found by taking the real value of DC at the vertex V of the curve.

Now, in the present case, calling $AV=a$, we have $DC=a+x$, $(AV+VE,)$ therefore $a+x=\frac{C}{\dot{y}}\times$ flux. of $\frac{\dot{y}}{\dot{x}}$. Take $\frac{\dot{x}}{\dot{y}}=u$, and by integrating, we have

$u=\sqrt{\frac{a2x+x^2}{C}}$, and therefore

$\dot{y}=\left(\frac{\dot{x}}{u}=\right)\sqrt{C}\times\frac{\dot{x}}{\sqrt{2ax\times x^2}}$; whence by integration

$y=\sqrt{c}\times\text{Lo.}(2ax+2x^2+2\sqrt{2ax+x^2})+\text{B}.$

At the vertex $x=0$, therefore

$$y=\sqrt{C}\times\text{Lo.}(2a)$$

And consequently the ordinate

$$y=\sqrt{C}\times\text{Lo.}\frac{a+x+\sqrt{2ax+x^2}}{a}.$$

Lastly, to find the value of $\sqrt{C}$, we take some point of the extrados, where the ratio of x and y is known. For example, if the span $=2S$, and height $=h$ are given, we have $S=\sqrt{C}\times\text{Lo.}\frac{a+h+\sqrt{2ah+hh},}{a}$

hence $C\sqrt{}=S\div\text{Lo.}\frac{a+h+\sqrt{2ah+hh},}{a}$

and finally $y=S\times\frac{\text{Lo.}\frac{1}{a}(a+x+\sqrt{2ax+x^2}}{\text{Lo.}\frac{1}{a}(a+h+\sqrt{2ah+h^2}.}$

We subjoin a Table, calculated by Dr Hutton from this formula, for an arch of 100 feet span and 40 feet rise, the thickness of the crown being taken at 6 feet. It is nearly of the same dimensions as the middle arch of Blackfriar's Bridge, and which may answer for any arch where these dimensions are similarly related to each other.

EC.	DC or AE.	EC.	DC.	EC.	DC.
0	6.000	21	10.381	36	21.774
2	6.035	22	10.858	37	22.948
4	6.144	23	11.368	38	24.190
6	6.324	24	11.911	39	25.505
8	6.580	25	12.489	40	26.894
10	6.914	26	13.106	41	28.364
12	7.330	27	13.761	42	29.919
13	7.571	28	14.457	43	31.563
14	7.834	29	15.196	44	33.299
15	8.120	30	15.980	45	35.135
16	8.430	31	16.811	46	37.075
17	8.766	32	17.693	47	39.126
18	9.168	33	18.627	48	41.293
19	9.517	34	19.617	49	43.581
20	9.934	35	20.665	50	46.000

The curve of Fig. 8. is accurately drawn to these dimensions, and may give an idea of the form of an equilibrated arch. It is not destitute of grace, and is abundantly roomy for craft.

Such, then, is the analytical theory of equilibration: for a practical subject it does, we confess, appear abstruse.

Those who have already studied the theory, will observe, that we have greatly simplified the investigation. The construction we have given for circular arches we shall probably find useful hereafter. We could with pleasure have prosecuted the subject farther, not only as it affords some good general views of the equilibration of arches, but exhibits also several beautiful examples of the application of the higher calculus. Yet we must repeat, with all due respect to the learned and eminent men who have turned their attention to it, that we fear their speculations have been of little value. In saying this, we do not mean to surmise, that their deductions are any way erroneous; they are legitimate consequences from the principles assumed. But it appears to us, that the writers on equilibration, like many others who have hastily applied analysis to physics, have taken too narrow a view of their subject to comprehend all the variety of practice. Setting out with one leading principle, best adapted, perhaps, to the application of calculus, they neglect the numerous circumstances by which it may be modified, and which are too important to be overlooked in drawing practical inferences from such an investigation.

Their principal care respects the figure of the soffit, a thing which the practical engineer knows may admit of the greatest variety. As to the thickness of archstones, side wall, and piers, the horizontal section or ground plan of the bridge, the manner of filling up its haunches, of forming the joints, of connecting it with the abutments, wing walls, &c. w are still left in the dark.

The analytical writers have assumed one leadin y.

principle, that the arch is in every point kept in equilibration solely by the gravity of the superincumbent column of matter. Now, it is even doubtful whether this principle be true. At any rate, they do not consider the numerous modifications which it receives, from the cohesion of that matter among itself; from the mutual cohesion and friction of the archstones; from the position of their joints; from the different specific gravity which the arch and superincumbent matter have, or which they may be made to have; from the lateral, and in some cases hydrostatic pressure, propagated to the masonry throughout that matter; and, in fine, from a number of other causes, which, if not singly, are, when combined, at least of as much importance as the gravity of the vertical column of matter alone.

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Let us turn, therefore, to another mode of considering this subject, which has been adopted by De la Hire, Parent, Belidor, and many others on the continent, and in our own country by the ingenious Mr Atwood.

The latter has, from the known properties of the wedge, and the elementary laws of mechanics, exhibited to us a geometrical construction for adjusting the equilibration of arches of every form. The mathematical reader, who has not lost his relish for the ancient geometry, will find there an elegant specimen of its application; for he completes his geometrical construction without once having recourse to any other than the principles of elementary geometry and trigonometry. It had been well, indeed, if he had adhered longer to that mode of investigation; for, by applying the analytic form too early, he has been led unawares to consider that only as an approximation to the values of the quantities sought after, which, in fact, is the expression for the values of these quantities themselves. Nevertheless we owe much to Atwood: he has shewn, that the advantages of equilibration are not confined to any particular curve; that the drift or horizontal thrust of an arch may be easily found; and that an arch may have all the advantages of equilibration, whatever its figure may be, merely by adjusting the joints of the archstones.

The stones, or sections of an arch, being of a wedge-like form, have their tendency to descend opposed by the pressure which their sides sustain from the similar tendency of the adjoining sections. Should this pressure be too small, the stone will descend; should the pressure be too great, the stone will be forced upwards.

These pressures act in directions perpendicular to the touching surfaces; for, if the original direction of any pressure should be oblique, it may be resolved into two forces, of which, while one is perpendicular to the surface, the other is parallel to it, and, of course, neither increases nor diminishes the perpendicular pressure.

Theory.

The wedge A, Fig. 9, if unimpeded, would descend in the direction VO, but is prevented by the reaction of B and B′, acting in the directions PQ and $K'I$, perpendicular to the sides AG, QD; and it is known, from the properties of the wedge, that if PQ, or $K'I$ be to the weight of the wedge A, as DO is to DG, the wedge A will remain at rest. If also the wedge A be only at liberty to slide down GA, considered as a fixed abutment, then the force PQ alone will keep it in equilibrio. The force PQ being perpendicular to DO, has no tendency to make A slide either up or down on that line, but produce it towards N, making NM equal to PQ; then this force acting obliquely at N, may be reduced to two others, viz. MR perpendicular to AG, expressing the perpendicular pressure on the abutment of A, and RN expressing the force or tendency it has to make A slide upwards along AG. Again, take the vertical line Aa, expressing the weight of A, and draw aH at right angles to AG; it is very evident, that AH expresses the tendency of A by its weight to slide down GA. AH is opposite, and is equal to NR.

For, draw the perpendiculars Dd and Ap, then the triangles AaH, AGp, DGd are evidently similar; and also the triangles ODd, OQN, MNR, as they have always a common angle besides the right angle. Now the force PQ, that is, MN is to the weight of A, that is Aa, as OD to DG by supposition.

$$\text{And } Aa : AH :: AG : Ap :: DG : Dd$$
$$\text{Therefore, } MN : AH :: OD : Dd :: MN : NR.$$

Or MN has the same ratio to AH, that it has to NR; that is, AH and NR are equal, or the tendency of A to slide downwards by its weight, is balanced by the tendency of MN to make it slide upwards: wherefore the section A remains at rest in equilibrio.

Considering the whole arch as completed, with its parts mutually balancing each other, the force PQ, which is necessary for sustaining the wedge A, will be supplied by the reaction of the adjacent wedge B. Now, let it be required to ascertain the weight of B in proportion to A, so that they, being adjusted to equipoise, may continue to be in equilibrio, when left free to slide along KB. Since MR is the pressure produced by PQ in a direction perpendicular to AG, we must add to this Ha, which is derived from the wedge A; therefore make Mn equal to Ha, produce MR to Y, take YZ equal to Rn, draw ZW at right angles to KB; YW is the force tending to make B slide up BK: take therefore BH' equal to YW, draw the perpendicular $H'b$ meeting the vertical Bb in b; Bb will represent the necessary weight of the wedge B; and the whole is so evident from the composition of pressures, as to require no further demonstration. Such is Atwood's construction; he has rendered the demonstration much more prolix, by the unnecessary introduction of trigonometry; and after shewing how the weight of the sections C, D, &c. may be found in the same way, he goes on to reduce these weights and pressures to analytical and numerical values. He finds these in terms of the sines and tangents of the successive angles of inclination; but in reducing these to numbers, he has been led to the accumulation of small errors in that very operose way of proceeding, to give erroneous results; and into the singular mistake of conceiving, that the real expression of these values was only an approximation. Had he recalculated the whole by more extended trigonometrical tables, they would have quickly undeceived him; and they would have shewn him, that what he was thus searching so deeply for, was all the while lying exposed at the surface; that the apparent difficulties were entirely of his own creation, and his imagined accuracy was error. This should teach mathemati-

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cians to beware of thinking calculation the surest mode of eliciting truth. It should be the last thing employed. Nothing is so simple, so perspicuous, as the diagram. Its geometrical properties should be pursued as far as possible. They are not only clear, they are palpable. And in such applications of mathematical theory, the whole being a creature of the mind, it seldom admits of an approximating value in any part.

Let us now return to the geometrical construction.

The weight of the section C, may be determined in the same way as the foregoing. But surely more simply thus: From C draw CS parallel to WZ, that is at right angles to KO, and make it equal to $\mathrm{WZ}+\mathrm{H}'b$; draw $\mathrm{S}c$ at right angles to LO, meeting the vertical $\mathrm{C}c$ in c, then $\mathrm{C}c$ represents the weight of C. From D, draw DT parallel and equal to $\mathrm{S}c$, draw $\mathrm{T}d$ perpendicular to DO, meeting the vertical $\mathrm{D}d$ in d, $\mathrm{D}d$ is the weight of D, and so on successively.

Nay, instead of drawing DT parallel to $\mathrm{S}c$, and $\mathrm{T}d$ perpendicular to DO, we may at once draw from S, $\mathrm{S}d'$ perpendicular to DO, which will cut off for us $cd'=\mathrm{D}d$, the weight of the section D. It is of no consequence, although the lines of abutment do not all run to the same centre O.

Fig. 10.

And thus we obtain a general construction for all the sections, which turns out abundantly simple, Fig. 10: for, upon any vertical line $b'e$, if cb be taken to represent the given weight of any section C, and $c\mathrm{T}$ be drawn at right angles to CO, and $b\mathrm{T}$ at right angles to BO, meeting the other in T: then $\mathrm{T}b$ represents the pressure against the abutment OB, and TC the pressure against $\mathrm{O}c$, and by drawing $\mathrm{T}d$ at right angles to DO, $\mathrm{T}e$ to EO, &c. we have the weights of the successive sections represented by cd, de, &c. and the pressure on their lower abutments represented by $\mathrm{T}d$, $\mathrm{T}e$, &c.

We may carry the same mode of determination to the other side of C, and pass the vertex of the arch. The divisions representing the weights of the sections will run upwards along the indefinite line cb'. The pressures on the abutments will be determined as before. Should the two sides of a section be parallel, the perpendiculars through T upon them will coincide; such a section therefore should have no weight. But should the two lines of abutment diverge towards the lower side, the line expressing the weight of that section will return upon the vertical, shewing that such a section requires the reverse of weight, viz. a support from below. The line TV drawn horizontally through T exhibits the horizontal pressure, which is uniform through the same equilibrated arch. But it is evidently greater, the less $b\mathrm{T}$ and $c\mathrm{T}$ are inclined to each other, the weight bc being constant, that is, the smaller the angle of the wedges or sections. It also increases directly as the weight of the section C, &c. The line $\mathrm{V}e$ expresses the weight of the semi-arch or perpendicular pressure on each pier; being the sum of the weights of all the sections in the semi-arch.

Again, it is obvious that the angles $b\mathrm{T}c$, or $c\mathrm{T}d$, &c. are equal to the angles of the sections BOC, COD, &c. If therefore the weight of any section E be given $=de$, and the requisite angle of that section be required, every thing else being known, we have only to join $\mathrm{T}e$, and the line EO being drawn perpendicular to $\mathrm{T}e$, will exhibit the inclination of the lower abutment of the section; $d\mathrm{T}e$ is the angle of that section. And here it matters not where the point E be, that is, how great the base of the section be, provided the weight is equal to de. We also see that while the angles remain the same, and the weights proportional, it is of no consequence what the curve passing through the lower edges of the sections, or through their upper edges may be, they may even be straight lines. According to this principle, *the architect is not confined to given forms of intrados or extrados;* he may take whatever curve appears most beautiful or useful: and, what is more, by the proper adjustment of the joints, *he may cast the ultimate pressure in any direction which he thinks most conducive to the strength of the edifice.*

The reader will easily perceive, that the segments of the vertical line rapidly increase, as the perpendiculars to the line of abutment approach the vertical; that is, as the abutments approach the horizontal line; and in that position, the last segment becoming infinite, it is impossible by mere weight alone to effect the adjustment of the sections.

Though the geometrical construction we have just given is so simple, that it appears likely to answer every practical purpose; yet it may be proper to express analytically, or rather arithmetically, the values of the several quantities concerned in the investigation. This is attended with no difficulty, as $\mathrm{TV}e$ being a right angled triangle, it is obvious that the weight $\mathrm{V}e$ of the same arch is the tangent of $\mathrm{VT}e$, or of the inclination of the lower abutment, when TV the horizontal force is radius; at the same time also, the pressure $\mathrm{T}e$ on the abutment is the secant of the same angle; and the weight cd of any section is the difference of the tangents of the inclinations of its upper and lower abutments. In like manner $a\mathrm{V}$, the weight of half the key-stone, is to TV the horizontal force as the tangent of half the angle of that section is to the radius; or, as radius is to the cotangent of the same angle.

Applic tion to flat arc

PLAT LXXX Fig. 1.

We now proceed to shew the application of this investigation to some practical cases, and the first we shall consider, is that known by the common, though aukward name of the *flat arch;* one with which every mason is perfectly familiar, though it be seldom noticed by writers on equilibration. ABba is a structure of this kind, adjusted to this equilibrium, and resting on the abutments Aa, Bb. Its construction is exceedingly simple; nothing more is necessary than to draw all the joints mM, lL, &c. to one centre C; and the reason is obvious; for DK, KL, &c. are the differences of the natural tangents of the inclinations of the abutments, the perpendicular CD being radius; and the same thing is true in the line da, and in every other parallel section. The surface therefore Am, Ml, that is, the bulks or weights of the stones, are in the same ratio, and it is that which is required by the above principles. Also, if we assume the line of its base to represent the weight of any stone in the arch, for example, KD for half the keystone; then the perpendicular CD is the horizontal *thrust*, *drift*, or *shoot* of the arch. By increasing DC, or diminishing it, that is, by drawing the joints to a lower, or a higher centre, we may alter this thrust at pleasure. What if we should take C up to D? Some curious ideas occur here, but being chiefly speculative, we shall not now pursue them. They serve to connect this case very neatly with the lintel and the Egyptian arch, (or that formed by flat courses of stones gradually overlapping each other, until the opening be covered), in each of which the horizontal thrust vanishes. We ought also to observe, that whatever weight of stuff lies on an arch of this kind, there is no change of design requisite, so long as the upper surface or roadway is horizontal. For being every where of the same height, the mass incumbent on any stone will be proportional to its base, viz. the back of that stone; since we must conceive the stuff to press vertically. It is therefore the same as if the whole arch had undergone a change of specific gravity; every pressure will be increased in the same proportion.

The design of an equilibrated horizontal arch, or plat band, being thus easily formed, it will not be difficult to extend it to a curve of any form, $a\partial b\,b'd'a'$, Fig. 1. is an arch of this kind. It is a circular segment from the centre C, to which the joints of the horizontal arch were directed; the two key stones have the same weight and obliquity of abutment; consequently the horizontal thrusts are the same. The other arch stones being previously intended to have the same weight with those of the flat arch, it is only necessary to draw the lines 1 1, 2 2, 3 3, parallel to K*k*, L*l*, M*m*, and so as to produce this equality. This being merely a simple problem in mensuration, we shall not occupy the reader's attention with the solution of it. In the Figure referred to, we have divided the soffit AB of the flat arch into equal parts; all the stones therefore of that as well as the curvilineal form, are of equal magnitude and weight, the angles of the arch stones only varying. We might make a table of these angles, to any given form of keystone, but it is really unnecessary; for we have only to take the tangent of half the angle of the key stone, or more correctly, of the angle of inclination to the vertical of one abutment of the keystone, from a table of natural tangents, and by adding to it twice the same number successively, we have the natural tangents of the inclinations of all the other abutments. We believe, however, that the practical builder will prefer a geometrical construction to this, and lay off his joints by means of the common bevel.

Before we take leave of the straight or flat arch, there is another of its properties we would wish particularly to be noticed. The reader must have already observed, that when CD expresses the horizontal thrust, or pressure of the vertex, CK, CL, CM, &c. express the perpendicular pressures on the successive joints K*k*, L*l*, M*m*, &c. Now, it is obvious, that K*k*, Ll, &c. are proportional to CK, CL; for AD, *ad*, are parallel. Therefore the vertical sides of the arch being parallel, *the pressure on each joint of the flat arch is always proportional to the surface of that joint*, and the pressure on each square inch of joint throughout the arch is always the same. It may readily be found too, by dividing the horizontal thrust by the area of the vertical section D*d*. This is a most valuable property, for it secures uniformity of action in every part of the structure. But it is not to be found in the arch *abd*; for there, the joints being nearly equal, the pressure on each increases as we descend from the vertex, and may, at the lower sections, be eventually so great as to overcome the cohesion of the materials.

It may be objected to the straight arch, that the acute angles, as A*am*, AM*m*, are very apt to chip away, and weaken the arch. Now this is certainly true, but it has no connection with the doctrine of equilibration. There is, however, a very ingenious mode of remedying it; for if the upper and lower extremities of each joint be drawn to a centre, considerably below the former, or even be formed into vertical lines, as at *m*, *n*, it will materially stengthen the acute corners without injuring the equilibration. We may conclude, therefore, that a structure of this kind possesses every requisite that can be looked for in an equilibrated arch. Is the flat arch, then, which admits, with such facility of the most perfect equilibration, one of the strongest possible figures? We believe every practical man can give us a prompt answer to this question. But, before we take any farther notice of it, we shall proceed somewhat farther with the applications of our theory. The segment $a\partial b$ was adjusted to equilibrium, with reference to the flat arch, upon the principle that the weight of the archstones was only to be provided for. In general an arch of this kind is filled up at the flanks, so as to form a roadway as nearly as possible horizontal. We must, in that case, when considering the weight of each archstone, not lose sight of the difference of pressure upon it, arising from the varying height of the incumbent mass. Having, therefore, divided the back of the arch into sections *d* 1, 1 2, 2 3, Fig. 2, each containing one, two, or more arch stones, and having drawn the vertical lines from these divisions to the line of roadway, we calculate the weight of the trapezoid of the stuff over each section; add this to the weight of the section; and divide the tangent line or flat arch accordingly.

Plate LXXXI. Fig. 2.

We may even give a construction for this. The stuff over any section 2 3, is proportional to the trapezoid *t* 2 3 *v*, or nearly $tv \times sw$; for we need take no notice of the small segment of the circle between 2 and 3, but consider the arch as polygonal, in which case the mean height is *sw*.

But 1 2; 2 3 being equal, we have *tv* or 2*y* as sine of 2 3 *y* (*i.e.*) as sine of the inclination of the arch; wherefore, drawing the mean height *ws*, and producing C*w* to meet the perpendicular *sx*, take the weights over the sections to be represented on the horizontal line, by lines equal to *wx* respectively; for *sw* is to *wx* nearly as 2 3 is to 2 *y*, and *tv*, at the vertex of the arch, is equal to 2 3; and since the weight of the archstone will be nearly constant, and that on the supposition that the weight over each section is represented by the trapezoidal space included between it and the roadway, let us assume the weight of the keystone, as represented by the part *d*P, and the others by similar additions. If we have an arch differing in gravity from the stuff which loads it, we can measure to a circle within, or without the circle of intrados PT*u*W. Draw, therefore, the horizontal line P*o*, and lay off P*a* equal to $\frac{1}{2}$ P*q* for the half keystone and its load, lay off also $ab=ln$, $bc=ux$, &c. and these divisions will represent the weight of the several sections, the superincumbent matter being included.

This method is evidently only an approximation; we consider the principal load as arising from the mass incumbent on each section, or at least that the weights of the sections are proportional to these masses. It becomes pretty accurate, by taking w in the mean circle drawn between the soffit and back of the arch; and we might render it still more accurate, by giving the determination a fluxionary form, but we write at present for the practical builder, to whom the calculus is seldom known; besides, as the reader will see hereafter, we do not think the rigid determination of this matter as yet of much consequence.

Having thus discovered the weights of the sections, and laid them off on the horizontal line, as if for a flat arch, and having, either from the given form of the keystone, or the horizontal thrust, drawn the angles of abutment which a flat arch would require, the joints of the arch in question are to be drawn parallel to these, and through the extremities of the proper sections, previously marked out, as above mentioned. If there be intermediate joints, they may either be drawn properly related to the others, or separately, discovered by a repetition of the construction. For example, let C be the given centre for the keystone; draw Ca, Cb, Cc, &c.; and through 1 draw the joint 1R parallel to Ca, also 2T parallel to Cb, and 3W to Cc, &c.: the arch would then be in equilibration.

PLATE LXXX. Fig. 2.

Thus we find, that, *by the proper adjustment of the joints to the weight of the section, we may form equilibrated arches, having soffits of any figure* that may be thought proper, and with any proportion of dead weight over them that circumstances may require. Let us now look at the converse of this problem; where the inclinations of the joints being given, it is required to discover the mass or weight which must be allotted to each section, so as to preserve the whole in equilibrium.

Pursuing the mode already employed, it is evident, that if we lay off from one centre the angles to be formed by the successive joints, or abutments, with the vertical line, a horizontal line drawn to cut them will represent, by its successive segments, the weights of the several sections; while, at the same time, the perpendicular let fall from the centre on this line will exhibit the horizontal thrust. If the arch, therefore, must throughout be of equal thickness, we have only to mark off upon the soffit, or rather upon the mean curve, segments proportional to those of the horizontal line. If the upper and lower outline of the arch be determined, we must divide it into trapezoids, having the same proportions; then draw the joints parallel to the lines expressing the given angles of inclination. Such joints will run to several different centres, thereby shewing us, that their union in one is not at all necessary to the security of the arch, even should that be a portion of a circle.

The position of the joints is usually given in a different way from that which we have just considered. In circular arches they are generally formed by producing the radii from the centre; and in others they are commonly drawn perpendicular to the curve. Now, though we have just shewn, that this is by no means necessary to the equilibrium, yet, as it is in reality the most convenient in practice, it may be of importance to attend to the effects likely to be produced by this modification.

We see, in Fig. 10. that the tangents on the horizontal line rapidly increase as we pass outward, and we should therefore increase, in the same proportion, the weight of our sections. We cannot increase the base as proposed above, for that is necessarily given by the position of the joints, but, as we are still able either to increase the height or the breadth of the sections, we may consider the effect of both these modes.

Let it be required, then, to equilibrate a circular arch, where the stones being all of equal thickness, with joints equally distant, and drawn all to one centre, we are only at liberty to increase the width of the roadway, or length of the horizontal courses.

Considering each course of arch stones as a prism of a given base, a supposition sufficiently accurate, it is evident, that its magnitude or weight increases with the length only. But this weight must, from the principles already laid down, be as the difference of the tangents of its abutments; the length therefore must be in that ratio. Accordingly we find the breadth at different distances from the vertex in the same way with the weights of the sections: the breadth at 45° must be double, and at 55° must be about triple of that at the crown, and will increase still more rapidly afterwards. Proportions such as these may answer well in the short flight of steps for a flying staircase, but are quite unfit for our present purpose. When we recollect, however, that in a bridge, the extraordinary expansion towards the haunches is materially corrected by the increased pressure of the incumbent mass in that part, we are encouraged to proceed a little farther, and consider the effect of the second mode of effecting the equilibrium.

The pressure of matter upon each section has already been stated as proportional to $tv \times sw$; but tv is the difference of the sines of the angular distances of the successive abutments from the vertex, and sw is the mean versed sine added to the given thickness at the crown, when the roadway is horizontal. We have therefore the pressure as the difference of the sines × (mean versed sine + thickness at vertex.) But these pressures are also, from the theory, as the difference of the tangents of these angular distances. In the present case, where the angles of abutment, and, consequently, where the difference of their sines and tangents are known, and where the mean versed sine may also be readily formed, it will not be difficult to state the conditions of equilibrium for an arch of any dimensions.

In the common mode of building, we must give the arch a sufficient thickness at the keystone, to resist the horizontal thrust, ensure stability, and bear the loads likely to come upon it. We must also cover this part with a certain thickness of gravel, or other matter, so as to form a roadway. The varying pressure of the wheels of a loaded carriage, when it is propagated through this stratum of gravel, will be so far diffused as not to disturb the stone immediately below it, nor injure the bridge by splintering away its corners. This thickness is made as small as possible, that the bridge may not be unnecessarily elevated, and the roadway is preserved nearly horizontal. The other courses of archstones too, do not often differ much in thickness from that at the crown. But although these things are pretty constant, there is a considerable degree of latitude in filling up the space between the back of the arch and the roadway. It may be done with substances varying in density, from the lightest charcoal or pumice, open shiver or chalk, to closely rammed clay, or even solid masonry; and it is not uncommon to make, in various ways, open spaces in the masonry of the spandrel, covering them above, so as still to support the roadway.

It will therefore be proper for us to enquire, what is the density requisite over every section of an arch, where the thickness of the crown is given, the roadway horizontal, the arch of uniform thickness, and the angles of abutment of the several sections constant, that is, all drawn from the same centre; or, what is the same thing, let us suppose the structure built up to the horizontal roadway with parallel sides, and then enquire, what is the proportion between the pressure borne by each section, in this way and the pressure of equilibrium; we shall thereby discover the ratio in which the density of the backing must, if needful, be diminished; and the quantity of expansion necessary towards the springing of the arch, that the advantages of equilibration may be preserved, even in this state of things.

Before we give a more rigid determination, we should wish to shew the practical builder, that the solution of this problem may be easily approximated to, by the help of the trigonometrical tables. For we may suppose the matter of the archstones to be the same in specific gravity with that which lies above it; and as there can be no impropriety in considering the arch as polygonal, from joint to joint, our mean versed sine is only half the sum of those at the two joints. The supposition is not strictly accurate, but it is sufficiently near: greater strictness would only serve to render the calculation more complicated, without making it more useful.

The following Table exhibits, in the first line, the supposed sections of the polygonal vault, taken 5° asunder. The second line is the angles of abutment, or inclination of each joint to the vertical. The third, the ratio of weight in each section, taking as the standard 872½, or the length of the arch of 5° in 1000ths of radius; of course this line is merely the differences of the natural tangents taken at every 5°.

<table>
<tr><td>1</td><td>Key</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr>
<tr><td>2</td><td>2½°</td><td>7½°</td><td>12½°</td><td>17½°</td><td>22½°</td><td>27½°</td><td>32½°</td><td>37½°</td><td>42½°</td><td>47½°</td><td>52½°</td><td>57½°</td></tr>
<tr><td>3</td><td>872</td><td>880</td><td>900</td><td>936</td><td>989</td><td>1063</td><td>1164</td><td>1302</td><td>1489</td><td>1749</td><td>2119</td><td>2664</td></tr>
<tr><td></td><td colspan="12">The excess of each section over the key section will therefore be</td></tr>
<tr><td>4</td><td></td><td>8</td><td>28</td><td>64</td><td>117</td><td>191</td><td>292</td><td>430</td><td>617</td><td>877</td><td>1247</td><td>1792</td></tr>
<tr><td></td><td colspan="12">But we must consider, that a part of the thickness at the crown is roadway, and this not, like the arch-stones, kept of uniform magnitude over each section, but must be diminished in the ratio of the differences of the sines of the abutments, or horizontal bases. These differences are</td></tr>
<tr><td>5</td><td>872</td><td>869</td><td>859</td><td>842</td><td>819</td><td>790</td><td>755</td><td>714</td><td>668</td><td>617</td><td>561</td><td>499</td></tr>
<tr><td></td><td colspan="12">Now suppose the roadway, and other constant superstructure, to be at the crown of equal weight with the arch-stones; a supposition not far from the truth, and from which any small variation is not of great consequence; the weight of arch-stone and roadway will be a mean beween lines 3 and 5, or</td></tr>
<tr><td>6</td><td>872</td><td>871</td><td>866</td><td>857</td><td>846</td><td>831</td><td>814</td><td>793</td><td>770</td><td>745</td><td>716</td><td>686</td></tr>
<tr><td></td><td colspan="12">And the excess of weight necessary on each section, will be</td></tr>
<tr><td>7</td><td>0</td><td>9</td><td>34</td><td>79</td><td>143</td><td>232</td><td>350</td><td>509</td><td>719</td><td>1004</td><td>1403</td><td>1978</td></tr>
<tr><td></td><td colspan="12">Which is only about a fifth more than the preceding. And this must be provided for in the spandrel, or over the flank of the arch; the solidity of which will be found, by multiplying the numbers in line 5 as bases, into the mean height of the matter at each section. These mean heights, or versed sines, are</td></tr>
<tr><td>8</td><td>.00024</td><td>.00381</td><td>.01519</td><td>.03407</td><td>.06037</td><td>.09369</td><td>.13397</td><td>.18085</td><td>.23306</td><td>.29289</td><td>.35721</td><td>.42642</td></tr>
<tr><td></td><td colspan="12">when the roadway is horizontal. And the effect of line 5, into line 8, which will express the end of the prismatic section over each arch-stone, will be</td></tr>
<tr><td>9</td><td>.2</td><td>3.4</td><td>13.1</td><td>28.7</td><td>49.4</td><td>74.0</td><td>101.1</td><td>129.1</td><td>156.0</td><td>180.6</td><td>200.3</td><td>212.8</td></tr>
<tr><td></td><td colspan="12">In which observe, that the unit of height is radius, the bases being expressed in the same notation as in expressing the weights. If a number in this line be divided by its corresponding number in line 7, it will express the thickness at the crown, in terms of the radius, which equilibrates the matter over the corresponding section, between the arch and horizontal roadway; when that stuff is filled solid, and of equal density with the arch, of course these thicknesses are</td></tr>
<tr><td>10</td><td></td><td>.39</td><td>.385</td><td>.363</td><td>.345</td><td>.319</td><td>.288</td><td>.254</td><td>.217</td><td>.180</td><td>.143</td><td>.108</td></tr>
</table>

The use of this will be understood by the following example. Suppose the thickness at crown ⅐ of the radius of the circle, or .142857, which answers very nearly to the 11th key. We see by this last table, that the flanks of the arch over that key, or at 50° on each side of the arch, must be filled solid.

Between that and the crown they must be lightened, by using lighter matter, or making vacant spaces in the spandrel: and at a greater distance from the crown, the flank, although solid, will be too light for a crown of $\frac{1}{7}$; so that we must expand or increase the breadth of the arch, in order to preserve the equilibration. Every different thickness of crown will require a different arrangement in this respect. Without therefore prosecuting this farther, let us assume the thickness equal to $\frac{1}{10}$ of the radius, or $\frac{1}{20}$ of the span in a semicircle; a proportion not unusual, and of easy calculation; from thence, to find the density of the matter in the spandrel, take the numbers of line 7, divide by those of line 9, and multiply by the given thickness $\frac{1}{10}$, that is, divide by 10; we have for the density in the spandrel, in that case,

11	.26	.26	.270	.289	.313	.346	.394	.460	.555	.700	.93	(.13)

Accordingly, the density beginning at $\frac{1}{4}$ about the crown, must be about $\frac{1}{3}$ at 30° from it, and thence gradually increase till about 60°, where it must be 1, or equal to that of the arch. After that, if no denser material can be employed, the arch must be expanded in breadth, having already arrived at the limit of density.

If we make the thickness at the crown $\frac{1}{20}$ of radius, the densities will just be $\frac{1}{2}$ of the above numbers; the point of solidity will be removed a little farther from the crown; and indeed whatever be the thickness, the densities will be proportional to the above numbers, and may easily be had from them.

The above is for a horizontal roadway. There will be some alteration requisite if the road be made to slope up the arch: the quantity of pressure that is thus lost, must be corrected by increasing the density of the spandrel; and this will be more necessary towards the springing. It will not be difficult for the practical builder to form an idea of its effect. Take the section at any part, say 30° from the crown, where the horizontal distance is $\frac{1}{2}$ of radius; suppose the road to slope 1 in 10, for example, which is great, the fall will have become $\frac{1}{20}$ of radius, or .05; the versed sine is .1339, accordingly the height in the spandrel is reduced to .0839, and the density being increased, inversely as the height, we have .552 in this case at 30° instead of .346, other things being the same. Yet this density is too great; for the solid matter in the roadway will be increased, being lengthened by sloping. At the same time it admits of doubt, whether it may not be made thinner, in the same proportion; for its oblique position gives a greater vertical thickness. This will preserve the density at .552, and the whole series will be found, by deducting $\frac{1}{10}$ of the sine from the versed sine in col. 8, and proceeding with the remainders as with col. 8, as follows:

MVS	8	.00024	.00381	.01519	.03407	.06037	.09369	.13397	.18085	.23306	.29289	.35721	.42642
$\frac{1}{10}$ of MS		.218	.00872	.01736	.02588	.3420	.4226	.5000	.5735	.6428	.7071	.7660	.8192
diff.		—00194	—00491	—00217	+00819	.02611	.05143	.08397	.12349	.16968	.22218	.28061	.34450

And the effect of this height into the diff. of sines will be

	—1.6	—4.3	—1.8	+6.9	22.2	40.6	63.4	88.2	113.4	137.0	157.4	172.0
And the density		—2.2	—1.9	+1.15	.645	.57	.552	.577	.634	.733	.891	1.15

Where we find the density in no case less than $\frac{1}{2}$, which is about 30° from the crown, and it increases both ways, about $\frac{3}{4}$ at 45° and at 19°, and solid about 53° and 16½°, the first 10° are marked negative; for we should observe, that when we keep the thickness at the crown $=\frac{1}{10}$, the parallel to the roadway cuts the curve of arch-stones. We ought in fact to make the roadway of a proper thickness where the arch approaches nearest to it, and relieve the crown by rounding the two inclined planes into each other. This will also tend to diminish the density necessary in the spandrel; for the height will be a little increased, while at the same time a greater pressure is derived from the solid roadway. But we choose to allow the example to remain in this way, that the reader may see that every necessary information can be got, even in this way of considering it.

A smaller degree of slope, as 1 in 20, or 1 in 40, will tend to diminish still farther the density necessary in the spandrel, and approximate it to those found for the horizontal line. We might calculate the densities as well for these useful slopes, as for other thicknesses of the crown or proportions between the key-stones and superincumbent roadway, which, in the preceding enquiry, is taken at equality; but we forbear doing so, being satisfied with giving the intelligent practitioner clear ideas of the subject. He already knows there are pretty wide limits to his practice; and, if the case be any way delicate, we should think any person deserving the name of architect may, after what we have said, go over the necessary calculations for himself.

The mathematical reader will perhaps say, that we have taken a very awkward and unscientific mode of resolving this problem; we are not, however, inclined to admit that opinion. Our object has not been to give a specimen of the application of calculus; but to shew the practical builder how a good conception may be formed of the relative pressures in different parts of his arch, and this by a process purely arithmetical, and which is level to every capacity. We conceive that this is the way to make our speculations really useful, and perhaps it were well if scientific men had this oftener in view. Neither have we carried our results to many figures, like some authors, who give five or six places of decimals; for we have considered that no common modes of measuring either distances, angles, or weights, can proceed to any thing near that nicety. Yet, that we may not rest satisfied with an approximation without shewing what degree of accuracy can be obtained, and especially that we may render this mode of conceiving the subject more useful by a more complete solution of the problem, we proceed to the following analytical investigation.

We have already shewn that the weights of the sections must be proportional to the differences of the tangents of the successive angles of abutment.

This is to be provided for,

1st, By the weight of the arch-stones; here taken as constant.

2d, By the weight of matter forming the roadway, &c.; here taken as of uniform thickness, and varying in effect only as the difference of the sines of the distances from the crown.

3d, By the matter in the spandrel; which may be made to vary in density, and is equal in the longitudinal section to the versed sine multiplied into the difference of the sines.

Take z, the angular distance from the vertex, δ the density in the spandrel, a the thickness of the arch or keystone, r the thickness of the road, &c. at the crown.

The sections are $=(a+r)$ flux. tan. $z=(a+r)(1+t^2z)\dot{z}$

The road is $=r\times$ flux. sine $z=r\dot{z}$ cos. z, wherefore

$(a+r)(1+\text{tan.}^2 z)\dot{z}=a\dot{z}$ for the archstone

$+r$ cos. $z\dot{z}$ for the road

$+\delta\times$ cos. $z\dot{z}\times$ V sin. $\dot{z}$ for the spandrel

that is $a+r+t^2z(a+r)=a+r$ cos. $z+\delta$ cos $\dot{z}\times$ V sine z

and $t^2z(a+r)+r$ V sine $z=\delta$ cos. $z\times$ V sine z

$$\delta=\frac{\text{tan.}^2}{\text{cos.}\times\text{V sin.}}(a+r)+\frac{r}{\text{cos.}\,z}\ \text{or}\ \frac{S^2}{\text{cos.}^3\,\text{V sine}}(a+r)+\frac{r}{\text{cos.}}\ \text{or}\ \frac{\text{sec.}\times\text{tan.}^2}{\text{V sine}}(a+r)+r\times\text{sec.}\,z$$

Which may be thus expresed:

In an arch of uniform thickness, with a horizontal roadway, given the thicknesses of the arch and roadway; required the density in every part of the spandrel, so that the whole may be preserved in equilibrio.

To twice the log. tangent of the angular distance from the vertex, add the log. secant, and subtract the log. versed sine; take the corresponding number, and multiply by the thickness of crown; and add to this the secant multiplied by the thickness of roadway. These, being expressed in terms of the radius, the resulting number gives the density in the spandrel, or proportion which the solid matter in measuring transversely across the arch bears to the whole breadth at the crown.

Accordingly, we have constructed the following short Table from this formula. The first line shews the multiplier for the thickness at the vertex. The second shews that of the roadway; and is merely the table of natural secants.

5°	10°	15°	20°	25°	30°	35°	40°	45°
2.01916	2.07809	2.18140	2.33757	2.560742	2.87293	3.309600	3.92952	4.82854
1.00382	1.01543	1.035276	1.06418	1.103378	1.15470	1.220775	1.305407	1.414214

50°	55°	60°	65°	70°	75°	80°	85°	90°
6.18556	8.513614	12.000	18.84713	33.54315	91.40552	224.144	1649.6946	Infin.
1.555724	1.743447	2.000	2.366202	2.923804	3.863703	5.75877	11.47371	Infin.

As an example of the use of this Table, let us take the thickness at the crown $=\frac{1}{10}$ of radius; and upon the supposition that the roadway, &c. is as thick as the archstones at the crown, we have, by multiplying as above directed, the following densities, viz.

at 5°	10°	15°	20°	25°	30°	35°	40°	45°
.25211	.25858	.26990	.28697	.31124	.34503	.39200	.45822	.55356

at 50°	55°	60°	65°	70°	75°	80°	85°
.69634	.93853	1.30000	2.00302	3.50051	9.33374	22.70234	165.5432

And if these densities be compared with those of line 11th, the reader will satisfy himself as to the value of the approximation which is there employed.

It would not be difficult, upon principles similar to the above, to establish a theorem for the elliptic, parabolic, and other curves similar to that we have now given fr the circle. But this is of less general use; and the limits assigned to an article of this kind, prevent us from entering at present upon an investigation, through which, perhaps, few of our readers would be inclined to follow us.

Another opportunity may be found of offering this to the public notice.

But, in the meantime, the reader must at once see, that by this mode of expressing the density in the spandrel, the solution we have given applies to any form of roadway. All that is necessary, is to compare the densities in the Table above given for a circular arch, with the relative height between the back of the archstone and the bottom of the roadway in the given design; and this will, we are sure, be more readily, and more satisfactorily done by the common builder with his sector and compasses, than by giving him equations for any number of figures of extrados.

We have arrived at a theory which is very nearly consonant with what has become, among our modern builders, the most approved way of distributing the weight over the haunches of an arch. It was customary, in the construction of bridges, to fill up the haunch with solid matter, such as gravel, earth, or the like, until a roadway of a proper slope was procured. Where the arches were small, this might not be attended with any perceptible bad effect, provided the archstones were of a good depth. But the necessity of lightening the haunches, has been forced upon the attention of builders, whenever large arches have been attempted. A more remarkable instance of this we cannot have than in the bridge of Pontypridd, in Wales, built by William Edwards, a simple country mason of Glamorgaushire. It is one of the boldest arches in Britain, perhaps even in Europe, being 140 feet span, and 35 feet rise; a portion of a circle of 87½ feet radius, and the depth of archstones is only 3 feet.

In each haunch there are three cylindrical openings running through from side to side; the diameter of the lowest is nine feet, of the next six feet, and of the uppermost three feet; and the width of the bridge is about eleven feet. To strengthen it horizontally, it is made widest at the abutment, from whence it contracts towards the centre, in the old and unartificial way, by seven offsets, so that the roadway is one foot nine inches wider at the extremities than at the middle; and is also very steep.

That this mode of lightening the haunches is effectual, we have undoubted proof in the case before us. It is not ungraceful, but were it thought so, the tunnels might be concealed by the side walls. Indeed these tunnels might even become useful, by affording additional passage for the waters in dangerous floods, as seems to have been intended in the ancient bridge of Merida, the Pont St Esprit over the Rhone, and in many other similar structures both ancient and modern. Nevertheless we cannot approve of this mode. It seems to press unequally on the arch, and only at a number of detached points; and though the widest tunnel may be placed just where the greatest evacuation is necessary, yet this ill agrees with the gradual approximation to solidity, which we should find in passing down the back of the arch. To make correct workmanship in these tunnels is troublesome and expensive. The following mode, which has now become the customary practice of our most experienced bridge builders, is much preferable.

PLATE LXXXIII.

Thin longitudinal walls are built over the flank of the arch parallel to the sides of the bridge, and about three or four feet asunder. The spaces between are covered at top with thin flat stones, or arched over by pointed or circular arches; or they are covered by regularly projecting courses in the way of an Egyptian arch; and in any case a platform is thus formed, upon which the gravel may be laid for a roadway.

In all probability, the first inventors of this mode of building, besides employing it with the view of equilibrating the arch by lightening the part over the haunches, had also an idea of steadying it by the lateral abutment. They appear to have considered these spandrel walls as a sort of hoops, that would keep the parts of the arch together, and hinder any stone from moving, by their great friction, inertia, and mutual abutment. Hence various ingenious modes have been employed for locking them into the back of the archstones, propagating the pressure through, and securing them from sliding away at the bases.

They indeed act in this way; nevertheless the equilibration of the arch should be attended to in their construction, that every unnecessary strain may be avoided. The thickness of these walls may be varied indefinitely, and the vacant spaces made in any proportion to the solid parts. The walls ought to be near each other, that their effect may be felt over the whole arch, and perhaps they should spread out towards the bottom; but this is not so very necessary, for the courses of archstones *break joint* with each other, and the inequality of pressure in one course is immediately corrected by being propogated to the succeeding. We may determine readily the thickness proper for these walls, by the help of the Table last given, provided we know the thickness of the arch, and of the roadway, (including the small arcade below it,) and the breadth of the whole structure. For example, let the breadth of the soffit be 20 feet, the thickness at crown $\frac{1}{10}$ of the radius, and the archstone alone $\frac{1}{20}$; being the same proportions as for the numbers in the example to last Table. Then from that example we find the thickness of all the masonry in the spandrel must, near the crown, be $\frac{1}{4}$, or 5 feet; at 30° from the crown, it must be 7 feet; at 40°, 9 feet 4½ inches; at 50°, 13 feet 11 inches; and at 57° or 58°, the whole must be solid masonry. Suppose, in the next place, that the side walls are 18 inches thick, and the spandrels 3 in number, of course there will be four openings. The thickness of each wall must be at 50° from the crown 3 feet 8 inches; at 40°, 2 feet 1½ inches; at 30°, 1 foot 4 inches; and diminishing from thence to half that thickness. Perhaps eighteen inches is too thin for the side walls, but they may be thickened towards their bases, diminishing the thickness of the spandrels in proportion. On the other hand, nine inches appears too little for the spandrel wall, when we consider that an arch is to be built on it; but the height near the crown will be so small, that a little additional thickness there will be of no moment; nay, it will enable the arch the better to resist any overload at the crown.

We have now determined a method of constructing an equilibrated arch for sixty degrees on each side of the vertex; and this method, so far from having any thing unusual, is even strictly analogous to that which is adopted by the practical builder. Why then cannot we keep pace with him throughout, and give a construction for the entire semicircle? No difficulty is felt by the mason in that case. He constructs such arches every day. Nay, they are not only the most common, but the most ancient of all arches. But the reader must have ere now observed, that our theory is in this particular defective. The enormous expansion of the roadway, or the infinite height of superincumbent matter which it seems to require when the joints are nearly horizontal, are altogether preposterous and impracticable. We are sure they are unnecessary; for many semicircular arches have existed from the time of the Romans, and are still in good order. What is more, the failure of such arches near the springing, where they differ farthest from the theory, is a most unusual, and, indeed, unheard of phenomenon. Is our theory erroneous, then, or is it only defective? There is no reason for distrusting any of the consequences we have hitherto deduced. They are mathematically derived from an unquestionable principle, the action of gravity. But we have not yet considered all the causes of stability. The lateral resistance of the masonry, or other matter behind the arch, acts powerfully in preventing any motion among its parts, and, independently of that, the friction of the archstones, assisted by the cohesion of the cement, affords a great security to the structure. We have even seen a semicircular ring of stones, abandoned to itself without any backing, and stand very well; long enough, at least, to admit of the other work being leisurely applied to it. Here was no lateral pressure; no equilibration; why did not the lower courses yield to the pressure propagated from above, and slide off? It was only their friction that could retain them. It is greatly increased by this very pressure. And it is unquestionable, that a ring of polished blocks in that situation would not have hung together for a moment. The force of friction, therefore, makes so important a part of our subject, that it deserves a separate enquiry. Let us see how it may be estimated.

When a mass of matter is moved along other matter of the same kind, the resistance produced by friction has been usually stated at $\frac{1}{3}$ of the weight. That of freestone, indeed, is supposed to be greater than $\frac{1}{3}$, perhaps it is $\frac{1}{2}$. And in the case to which we are going now to apply it, there can be little doubt, that, aided by the inertia of the stones, and the cohesion of the cement, the friction is even much more. But this force is inert; and we are at present enquiring, how far we are benefited by it in promoting the stability of our structure. It will, therefore, be proper to underrate it, at least until we discover how far we are warranted to say it must be beneficial.

Let LMN, Fig. 3, exhibit the three sections (10° each) of an arch, which we may conceive equilibrated above the section L, or 60° from the crown. Draw LT, expressing the direction and magnitude of the ultimate pressure, perpendicular to the upper surface of L. In like manner TV is the horizontal thrust, and VL the weight of matter over L to the vertex. Draw the perpendicular T *y b*; TL is the direction of the ultimate pressure when propagated to the lower surface of L; *y* L is its tendency to make L slide upwards along the joint. Now it is evident, that, if *y* L has to *y* T a less ratio than the friction has to the pressure, L will not move. Nay, what is more, L will itself have some weight. Take L *a* to represent it, which, in the case of equal sections, = the tangent *x z*. Draw T *a* for the ultimate pressure in the lower surface of L, and *a b* for the force to be resisted by friction, in this case equal to .1343, or about $\frac{2}{15}$ of the pressure, and of course less than the friction, which will at least be one-third of the same.

Since L does not move upon the section M, they are to be considered as one solid mass, and we pursue the pressure through the section M. For this purpose, lay off *a c* for the weight of M, draw the perpendicular T *d*, and the parallel *c d* to the joint MO, *c d* is the force opposed to friction in that joint, and still is less than one-third of T *d*, the pressure being, in the case of equal sections, =.2796, or about $\frac{11}{40}$. Lastly, lay off *c e* for the weight of the lowest section N, and draw as before. It is evident, that *e f*, the force opposed by friction here, is just equal to TV the horizontal thrust, as might have been concluded without any investigation. In the case of equal sections, its proportion to T *f* or V *e*, the weight of the semi-arch or perpendicular pressure, is as .4425, or about $\frac{7}{16}$, which is probably more than the friction will oppose without other assistance.

If, therefore, the friction on the horizontal bed at the springing be not equal to the thrust of the arch, we must increase it, as by dowelling it, for example, into the lower stones, or by backing it with other masonry, or by increasing the pressure on that joint, without altering the thrust of the arch, which may be done by thickening, or loading the arch just over the springing. And here the theorems for the extrados of equilibration come to our aid; for we see, that any quantity of matter may be laid over the springing courses, and far from disturbing the arch, it will tend to increase its stability. Indeed from what we have just said, it may be reasonably inferred, that the theorems for equilibration rather shew the relative weights that may be laid on the different parts of an arch, without tending any where to disturb it, than those which must be laid on as necessary to its existence. The force of friction acts powerfully either way in preventing any derangement of the structure, and will therefore permit us to make with safety great deviations from the conditions of equilibrium.

On the equilibration of arches by friction alone.

It may not be improper to inquire, what are the conditions for equilibrating an arch by means of the friction of its segments alone,—that is to say, what are the alterations practicable in the position of the joints, or in the weights over the several sections, until the tendency of each section to slide is just balanced by the friction at its lower surface?

Whether we inquire into the position of the joints, or the weight that may be applied, there are two cases; for the friction being an inert force, will resist the stone in sliding either upwards or downwards.

I. Let it be required to determine the position of the joints in an arch, when each section is just prevented from sliding outwards by the friction at its lower surface.

Plate LXXXI. Fig. 4.

Let the arch, Fig. 4, spring from a horizontal joint, as N *n*, where, of course, the friction acting in VN, is just equal to the horizontal thrust, and must therefore have to T *n'* or VN the weight of the semi-arch, the ratio which friction has to the incumbent pressure, say $\frac{1}{3}$. TN is the direction of the absolute

Theory.

pressure at the abutment N n. Take NM the weight of the section N, TM is the pressure on the joint of M, and making MT m similar to NT n', M m will also represent the extreme friction in that joint, and T m its load, and so on successively. Wherefore, if T m, T l, &c. be found, the joints of the arch may be drawn at right angles to these lines respectively, and every stone will be exactly in the predicament of N, that is, just kept by its friction from sliding away.

The positions of T m, T l may be readily discovered; for the angle n' T m must be equal to NTM. If, therefore, we make T a equal to TN, draw the tangent $a\,w$, and making $a\,b$ = NM, and joining T b, we have a T b = NTM. And, in this manner, taking $a\,b$, $b\,c$, &c. for the weights of the successive sections from the scale, and drawing lines from T, the joints may be formed perpendicular to the lines thus drawn.

Upon the same principles, we readily find a construction for the extreme weights of the sections, when the positions of the abutments, &c. are given. This is so evident, that we shall not stop to point it out.

Plate LXXXI. Fig. 5.

But a more convenient construction perhaps would be, to take the horizontal thrust, or quantity of friction in the vertical line C d, Fig. 5. Lay off the weight of the semi-arch $d\,a$, draw C a, make C x equal to it, also $x\,z$, mark off the weight of the sections along $x\,z$, and through the divisions draw lines from the centre; the joints required are parallel to these lines.

II. Let it be required, in the next place, to determine the other limit to the position of the joints, or that in which each section is just prevented from sliding in, by the friction on its lower bed.

Here it is evident, that as the friction acts precisely opposite to its direction in the former case, the joints may have, on the opposite side, exactly the same degree of obliquity to the position of equilibrium. Draw, therefore, the tangent $v\,y$ parallel to $a\,c$, cut it with C v equal to a C, lay off the weights of the sections along $v\,y$, and draw lines from C; these lines will exhibit the positions of the joints, which of course may be drawn parallel to them. We have marked these two limits of position in three joints of the half arch above the same figure, assuming the friction at one-third, and taking the first section of 30° as equal to the thrust: and any other arch might have been introduced as well as the circular. Any of the lines in the triangle C $d\,a$ makes with the corresponding line in C $y\,v$, or in C $z\,x$, an angle equal to a C x, that is, when the friction is one-third of the pressure, equal to 18° 26′; and when the friction is one-half, this angle is 26° 34′. The position of any joint, therefore, may vary in the former 18° 26′, and in the latter case 26° 34′, on either side of the position of equilibrium, before any sliding can take place among the sections. Nay, the friction of polished freestone is even more than one half, perhaps it is two-thirds of the pressure, which would give 33° 4′. And it is proper to observe, that this is not confined to the annulus of archstones, but holds equally with whatever weight the sections may be loaded. We may observe then, that in any arch, *the position of the joints may be varied about 20°, perhaps 30° from that of equilibrium, before any derangement can arise from the sliding of the arch stones.*

This is a most important conclusion, and leads to extensive practical consequences. It affords a true explanation of the facility with which arches are every where constructed, even by the common country mason. The equilibration theory has shewn us, that by adjusting the inclination of the joint to the weight of incumbent matter, we may suit an arch to any given circumstances; and we here find in the friction of the parts a powerful addition to its stability. We trust, therefore, that the reader now sees the propriety of the observation, which we made above respecting the inutility of searching very minutely into the exact position of these joints. It is in common cases scarcely possible to go wrong. But it must be observed, that the variation of position above mentioned, is to be reckoned from the position of equilibration, not from the common joints radiating all from one centre, or perpendicular to the curve, unless where such an arch is equilibrated by the superincumbent weight. For in an annulus of archstones, with radiating joints, which is the most common mode of construction, those towards the vertex can be drawn only a very little lower, and those towards the springing only a very little higher than the original centre, though either of them admits of a considerable variation in the opposite direction.

For this reason therefore we approve highly of the practice, which we believe is very general among artificers, we mean that of backing up the arch with solid masonry, for several courses above the springing. For granting that the friction on the horizontal bed be fully equal to the thrust, yet as the tendency to slide off is greatest there, it is well that it should be effectually resisted. This is readily done by the solid backing, which increases the mass of friction; and in the case of a bridge of several arches, enables us to set the contrary thrusts of adjoining arches in opposition to each other. The materials, therefore, in that part, ought to be laid close up to the spring courses, and also bonded into the inferior part of the abutment or pier, which will act as a sort of dowelling, and does not preclude the employment of that means also. If great security is thought necessary, cement, being a compressible substance, ought to be sparingly employed in the vertical joints at the back of the archstones.

The friction of the sections of the arch, as it permits a considerable variation to take place in the position of the joints, will also admit a considerable deviation from the load, which is necessary for equilibrium over any point of the curve.

It would not be difficult to investigate the extent to which this variation of weight might be carried. But we shall at present only remind the reader, that as we find a variation of 20° practicable in the position of the joints, he may conclude, that each section will admit of its load being altered to that which would suit a point in the curve 20° on either side of it.

But in speaking of this alteration of weight, it must be observed, that we consider it only so far as it is likely to cause the sections of the arch to slide on each other. If the overload be considerable, or if the arch be thin, and of course flexible, a deviation from equilibrium may produce an effect equally destructive with that which would arise by the sliding of the sections. Suppose this deviation to consist in overloading the crown, a case very likely to occur, for even the variable pressure of a loaded waggon bears, in some cases, a very sensible proportion to the weight at the vertex of the arch, this overload will be equivalent to a greater thickness of crown, and of course will sensibly increase the horizontal thrust, while the total weight of the arch, or vertical pressure, is much the same as before. This is a still stronger reason for backing up the spring courses with masonry; for unless the stones, where their joints become nearly horizontal, be sufficiently steady, they may, by the increasing thrust, be pushed along their beds; for they are already near the limit of steadiness from friction: a very short slide will open the joints towards the crown. The same thing will also be produced by the compression of the cement in the arch. The vertical sections will descend. They already tend strongly to do so. The separation of the sections on each side of the vertex is equivalent to drawing their joints to a lower point than before. This will again increase the horizontal thrust.

We have seen, that these joints are already too low for equilibration in a common circular arch. The motion of the lower sections, therefore, if once begun, will go on increasing, until the arch falls to pieces. But what is perhaps of more importance, as the joints towards the crown will now open below, and the sections, not being in entire contact, will hang by their upper corners only, these may chip and crumble away, thereby forming them into more acute wedges, and giving us a new cause of destruction. For though the cohesion of the matter of the archstone may effectually resist the tangential pressure, when distributed over a joint of considerable superficies; yet when the whole of that pressure is condensed into a small compass, or a mere point, and that near the edge, and acting perhaps in a very unfavourable direction, since the friction permits it to act with great obliquity, its destructive tendency may be irresistible.

Suppose a motion of this kind actually going on in an arch, as is generally the case when the centre or scaffolding is taken from below it, How is it to be prevented? We answer not easily: For though the motion be exceeding slow, or almost imperceptible, yet the quantity of matter is so enormous, that its momentum is great. Nothing, therefore, but the most solid work could resist it. Accordingly, in striking the centres of an arch, the whole is not taken away at once. It is not likely that any arch could withstand that treatment; but the centre is gradually let down, stopping now and then until the work settles. It does so first at the springing and haunches, and the crown of the arch is the last part that departs from the centre. It appears, therefore, that every arch is a segment of a greater circle, after it is finished, than before. Allowance should be made for this in the design, and in calculating the weights necessary for equilibrium from the horizontal thrust. An attempt is sometimes made to remedy this change of figure, by driving down the key stones. And though it is far better to render such expedient unnecessary by careful workmanship, yet this method is not to be despised. It seems to have been the common practice of the ancient architects. An overdriven key stone, or console, as it is termed, is one of the most usual ornaments of the archivolt. Nevertheless, even when this expedient is thought necessary, it should be employed with great caution. Wedges of small taper have great power. And the horizontal thrust should be in no case increased, without very weighty reasons.

Suppose the arch to descend somewhat at the crown, the stones there will hang by their upper edges, even when there is no apparent opening on the lower side of the joint. They will be pretty close for a good way on each side, so far indeed as the equilibrating superstructure extends, or to about 60°. And it will then be tolerably well equilibrated, even though the superstructure should not be yet applied. For the arch being then at the crown, the theoretic extrados will run further down on the back of the curve, ere it turns up again; and, of course, will for a good way not differ much from the back of the archstones. But beyond this point, or about 60° from the crown, things are not likely to be so steady. We do not say, the lower sections will slide: their friction is likely to prevent that. But the best workmanship cannot prevent them from *rocking* a little. At least, the sum of the motions of each joint will at length come to be something. The haunches will slip away a little, just where the equilibration ceases. The circular arch will become somewhat elliptic. The joints about that point will open behind; and if the case be dangerous, the stones will chip away below. Something of this kind, indeed, goes on in the building of every arch. As the courses approach the crown, their thrust makes the lower ones recede a little from the centre. But as the process is gradual, and the finishing courses are adapted to the shape of the opening which receives them, perhaps the only bad effect is the derangement of the crystals of lime, which have already begun to form, while the cement fixes in the lower joints of the arch. With good workmanship, the amount of the final derangement is so small, that no joint is opened beyond the limit at which repulsion acts, especially in such great pressures; so that every stone may be still considered as butting pretty fairly on its neighbours.

Having now exhibited the effects that may be expected from the friction of the parts of an arch, one thing only remains to be considered in this department of our subject, which is, the lateral pressure likely to arise on the back of the arch, from the materials employed to raise the structure to the horizontal line.

On the materials for filling up the haunches.

If the materials employed here be only a solid mass of masonry, it is not easy to see, every thing being steady, how it can act in any other way than in the vertical direction. If, however, a motion takes place in the arch, the mass of materials lying nearly over the springing, when the arch is not very different from a semicircle, will have such an enormous friction, if well built and bonded together, as would appear e-

Theory.

qual to the resistance of any pressure that is likely to be opposed to it. And when the arch is a segment much smaller than a semicircle, the rules we have already given for its equilibration must be considered. But, instead of solid courses of masonry, the haunches of arches are often filled up with coarse gravel or shiver, and sometimes with mere earth or sand. Materials of this description does by no means act by mere dead weight. It has a tendency to slide down towards a horizontal position; and, of course, possesses, in some slight degree, the *quaquaversum* pressure of a fluid. This may act on our arch in a manner altogether new, and produce strains for which hitherto we have made no provision. We shall first consider the back of the arch as filled up with a fluid substance, as water. The pressure in every part will be in a direction perpendicular to the curve, and will be proportional to the depth. A pressure perpendicular to the curve will be equivalent, in effect, to a vertical pressure, which exceeds it in the ratio of the secant of the inclination to the vertical. Of course, the pressure at the springing, when all is equilibrated, must be equal to the horizontal thrust in a semicircular arch. Take the thickness of matter at the crown $=\frac{1}{m}$ of radius, the weight of one degree $=k$, then the horizontal thrust will be $57\frac{1}{7}k$, and the height of fluid necessary for this will be $57\frac{1}{7}$ times the thickness at vertex, provided the specific gravity of the fluid be the same with that of the arch. But if not, let $f=$ the gravity of the fluid, and $S=$ that of the arch at vertex, then $\frac{57\frac{1}{7}\,SR}{fm}$ will be the height required. Suppose the arch made of brick, which is about double the specific gravity of water; and we have, for water filling up the flanks, till just covering the crown of the arch, a depth at the springing nearly equal to the radius; and, of course, the thickness at crown should be about $\frac{1}{114}R$, or $\frac{1}{228}$ of the span, when in equilibration at the springing. We take no notice of the effect of the arch in assisting this. Water, therefore, is much too light for equilibrating an arch at the springing, in any moderate thickness of crown. It might, however, be so employed. The quantity requisite is always finite, even at the vertical spring courses; and by expanding the arch, or otherwise employing its hydrostatical properties, the requisite weight of fluid could without doubt be obtained in any case. But it is unnecessary to pursue this speculation farther than merely to observe, that its weight on the arch, where a variation is requisite, might be adjusted, by attending to the modes of altering the density which we have noticed, when speaking of filling up the arch by masonry alone.

Though the action of sand, gravel, or mould, in situations such as this, be not exactly the same with that of water, in following the laws of hydrostatical pressure; yet these materials resemble water, and may be conceived to hold the middle place between the fluid and the solid backing. In some respects they are more advantageous than the fluid. They are stiffer, so to speak, affording a lateral abutment to the arch, if it is likely to yield; and as the parts have a great friction among themselves, it will require a much greater pressure acting horizontally, to make the matter rise, than in the case of a fluid. We must not, however, be too confident. Materials of this kind are compressible; and we have already seen, that very slight shifts are attended with dangerous consequences. At the same time, we need not be much afraid of a trivial departure from exact equilibration; for it is not likely that materials of this kind will act with the powerful effort of hydrostatical pressure.

But there is another case, where matter of this kind is likely to be attended with more pernicious effects than even a fluid of equal density would be. We mean, when the back of the arch is gorged up with water from land floods, if the backing be open gravel, or shiver, we have superadded to its weight that of the whole quantity of water admitted into the structure. This, even if it acts equally on both sides, must be a dangerous experiment on any arch; but where it is confined to one side, as is generally the case, and between lofty side walls, the effects are likely to be serious indeed. Accordingly, the builder forms gutters in the side wall to let off the water ere it collect. A practice which is in general highly useful; but which, in the case of sand, clay, or mould, is of small service. The water enters into such matter by its capillary attraction; and fills it to the upper surface in spite of our gutters. It of course expands it, and this with a force which we cannot measure, but which we are sure is very great. Here the friction of the parts, which was so useful in the former instance, proves extremely hurtful. For as the matter cannot easily rise, and probably the adhesion of its particles is increased by the water, the expanding force becomes an enormous hydrostatical pressure acting perpendicularly on the side walls and extrados of our arch, and which in all probability they may not sustain.

We do not mean to pursue the theory of the pressures exerted by these semifluids any further at present. We look upon their use in this case as radically bad, and would recommend its discontinuance. If the reader wishes for more information on the subject, he will find it when we come to speak of *retaining walls*. In the meantime we may remark, that the dangerous consequences of this mode of backing are, in some degree, prevented by ramming the layers of matter, especially if it consists of mould or the like; or, by puddling them so as to form a mass impervious to water. And here we should observe, that as this ramming will produce an extraordinary lateral pressure, we must attend to equilibration, as we rise along the arch, and secure the side walls, by thickening them below, or curving them horizontally or vertically.

On the thick of the stones

The thickness of the archstones is an important department of the theory of arches. It is natural that we should endeavour to make them as small as possible. That will diminish the expense of the structure, lessen the pressures in the arch, and increase the security at the springing. But there is an evident limit to this diminution; for though we take every pains to render the joints close, the stones may come at length to be so small as to crush by the thrust of the arch. This is, indeed, a curious branch of enquiry. It depends intimately upon the corpuscular actions of the particles of stone; a subject on which, we regret to say, that our information has been hitherto very scanty. The writers of this article have, at present, a series of experiments in some forwardness, which will throw much light on this, as well as on many other departments of architecture. Meanwhile, that we may not disappoint the reader by leaving the subject untouched, we shall endeavour to draw some information respecting it, from the present state of our knowledge, and the dimensions of structures already existing.

The question evidently depends on the amount of the tangential pressure. At the crown this is the horizontal thrust. We shall suppose all the joints to be duly drawn to equilibration, the sections fairly abutting on each other, and no weakness arising from acute angles.

Stone, it is said, will carry from 250,000 to 850,000 ℔ avoirdupois per foot square, and brick 300,000 ℔. They have been made practically to carry $\frac{5}{6}$ of this, and even more. The pillar in the centre of the Chapter House at Elgin carries upwards of 40,000 ℔ on the square foot, and there was formerly a heavy lead roof on it. It is a red sand stone, and has borne this pressure for centuries.

We shall therefore take 50,000 ℔ per foot as a load, which may be safely laid on every square foot in the arch. A cubic foot of stone weighs about 160 ℔ per foot; and brick weighs less. Suppose, therefore, the arch to be one foot thick at the crown, and the keystone one cubic foot, it will bear a horizontal thrust of 50,000 ℔, that is, 312½ times its weight.

But, 50,000 : 160 :: R : Tang. 11′ 0″ 3‴, which will be the angle of the key-stone in that case. So that an arch of 312½ feet radius, or a semicircular arch of 625 feet span, might bear to have a key-stone of a foot deep, without risking its being crushed more than in structures which have already stood for many years. And this may be called the limit of stone arch building; for if we double the depth of the stone, we will thereby double the weight also, and its ratio to the horizontal thrust will still be the same. Indeed this limit does not much exceed what has been actually executed. A considerable portion of the bridge of Neuilly is an arch of 250 feet radius; and Gautier mentions a platband in the church of the Jesuits at Nismes, the camber of which, after settling, would make it a portion of an arch of 280 feet radius. The length or span is 26½ French feet, the rise only 4 inches, and therefore the diameter of its circle would be 560 English feet.

This singularly bold platband was made under the conduct of Pere Mourgues, after the design of Cubisol, an able architect. The stones are 1 foot thick, their depth is 2 feet towards the key, and 2 feet 4 inches at each end. It had a camber given it of about 6 or 7 inches, and descended near 3 inches on striking the centres. (*Gautier.*)

We see, that the horizontal pressure does not determine the vertical thickness of the arch-stone. But as we pass down the arch, it is plain that the butting surfaces must increase, in proportion to the increasing tangential pressure.

At sixty degrees from the vertex, granting that the arch is equilibrated, the depth of the arch-stones must be doubled; and though the equilibration be carried no farther, yet, at the springing or horizontal joint, a small increase will still be necessary. The ratio will soon be found. To the square of the weight of the semi-arch, add the square of the horizontal thrust, the square root of the sum is the pressure at the springing. If we divide this by the horizontal thrust, it will give the thickness at the springing, compared with that which is necessary at the crown. Or if we divide it by 312½, it will give the smallest depth of joint which should be used at the springing. The thrust and weight are supposed to be given in solid feet. If given in pounds, divide the above quotient by 160, or divide at once by 50,000.

Example. Required the thickness of the lower joints for a semicircular arch, when the weight of a section of a foot in breadth from the crown of the arch to the springing is 60,000 ℔, and the horizontal thrust is 20,000 ℔, which answers nearly to a 60 feet arch, 4 feet thick at the crown.

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   60        20     50,000)63,250(
   60        20            1,265 feet,
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 3600       400
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123)400
    369
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    310 &c.
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or 1 foot 3⅕ inches nearly; of course the vertical section, or key stone, might be only $\frac{20000}{50000}=\frac{2}{5}$ of a foot, or 4⅘ inches, if it were necessary so to reduce it.

For another example, take a 50 feet arch, having 5 feet thickness at crown. The semi-arch may be found sufficiently near, by multiplying the half span into the half height to the road, viz. $25\times15=375$. And the horizontal thrust $5\times25=125$ feet of stone, $375^2=140600$, $125^2=13625$, their sum is 156250, the square root of which, divided by 312½, gives 1.265, or 1 foot 3 inches; and here again the vertical section might be $\frac{125}{312\frac{1}{2}}$, or 4⅘ inches only.

If we calculate upon the same principles, the depth of arch stone at the spring course of a semi-circle of 100 feet span, 10 feet thick at crown, we shall find it to be 5 feet, and at the crown the depth may be 19 inches. In the great arches of the bridge of Neuilly, the thickness at the crown is about 4 feet 8 inches, the span 128.2 feet, and height 32. The horizontal thrust is great, the crown being drawn with a radius of 150 feet; consequently this arch would require a depth at springing of about 4 feet. But when the centre was struck, the crown of this arch descended 23 inches, which has rendered it a portion of a much larger circle, and has greatly increased the horizontal thrust. After all, the pressure at the springing is scarcely greater than in the last example, and the depth of joint there need not have exceeded 5 feet. It is nearly three times that, and even at the crown the thickness is $\frac{1}{4}$ greater than the increased thrust would require. We trust, therefore, that, in spite of the great risk this singular arch has run, it may yet long remain a monument of the skill and boldness of the able architect who designed it.

Theory.

It may be proper to observe, that the French architects Perronet and Soufflot, made an experiment on the strength of the stone of which it was composed. They found, that a cubic foot of it, which weighs 152 ℔, required 240,000 ℔. to crush it. In the above investigation we have only taken it at 50,000.

The thickness at the crown of the arch, cannot, with propriety, be reduced so much as we have supposed in the above examples. This part of the structure is liable to be strained transversely. And it has been found, that when stone, or other matter, is bearing a great pressure longitudinally, its strength against a transverse strain is thereby much diminished. But, independent of that, there is another cause for preserving the crown of a greater thickness. The varying pressure of carriages would be apt to produce some motion among small stones; this would chip away their angles, and accelerate the destruction of the building. But there is seldom any need for this reduction. In most cases, it would only be additional labour.

OF PIERS.

Of Piers.

THE piers and abutments of a bridge must be so constructed, that each arch may stand independent of its neighbours. For though, by the mutual abutment of arch against arch, the whole may rest upon very slender piers, if once the structure is erected; yet, as they must be formed singly, and are exposed to many accidents, it will be best to contrive them, that the destruction of one arch may not involve in it that of the whole.

Some of the writers, on the principles of bridges, in treating this department of their subject, have found it necessary, by the help of the higher calculus, to find the centre of gravity of the semi-arch. The solution of the problem, we are convinced, so far as it is useful in practice, lies much nearer the surface.

The reader has already frequently seen, that the ultimate pressure may, in every case, be reduced to two others, viz. the weight of the semi-arch above, and the horizontal thrust. In the equilibrated arch, this pressure is directed perpendicularly to the joints of the sections; and these being usually drawn at right angles to the curve, the pressure is in the direction of the tangent to the arch. Hence, we have often called it the tangential pressure. Upon this principle, however, when the curve springs at right angles to the horizon, an infinite pressure is required in the vertical direction,—a supposition which cannot have place in practice. We must accordingly call in the assistance of friction in that case; a force which may be set in opposition to the horizontal thrust, and which, increasing with the superincumbent weight, very fortunately keeps pace also with what it is intended to oppose.

Granting, then, that the friction is so contrived, upon the principles already explained, that there is no danger of any slide at the horizontal or springing joint; it will be readily admitted, that no slide is likely to take place in any horizontal course below that, till we arrive at the foundation; for the disturbing force is constant, but the friction increases as we descend. Our principal care then must be, that the pier does not overset, by turning on the farther joint E of its base, as a fulcrum. Take a in the horizontal joint, Aa as the centre of pressure. Draw aV to represent the weight of the semi-arch, and VT the horizontal thrust; then Ta is the ultimate pressure: and if, when produced, it falls within the base of the pier, it is perfectly obvious that it can never overturn it. And this is altogether independent of the weight of the pier; for if that were a mass of ice, immersed to the springing in water, the case would be exactly the same.

But the pier itself has a considerable stability, arising from its own weight; and even though the direction of the ultimate pressure of the arch alone pass out of the base, the tendency to overturn the pier may be balanced by its weight. This weight may be supposed concentrated in the centre of gravity of the pier, and of course to act in the vertical line which bisects it.

Its effect will be nearly found by laying off in that line from the point q, where the direction of the ultimate pressure of the arch intersects it, qr=to the weight of the pier, and taking qs=the ultimate pressure=aT, and completing the parallelogram, the diagonal drawn from q will represent the direction and magnitude of the united pressure of the arch and pier. This is not strictly accurate; it would be so if a and q coincided, which is the case with a single arch standing on a pillar: but in general, the ultimate pressure is still more favourable than this. Its direction at any point is in the tangent of a curve, which approaches the vertical as we descend, since the proportion arising from the weight of the pier increases with its height.

In order to find analytical expressions for these forces, let the horizontal thrust of the arch $=t$. The weight of the half arch $=a$, and that of the pier $=p$, the height of the pier to the springing of the arch $=h$, the breadth at the base $=b$.

1. Then the horizontal thrust acting in AG, tends to overturn the pier, and its force round the fulcrum E will be represented by multiplying it by the perpendicular distance AD= viz. $h \times t$.

2. The weight of the pier acts in the direction BC, and its effect will be represented by multiplying it by the leverage CE, viz. $p \times \frac{1}{2} b$.

3. The arch acts with the leverage EK, which is not equal to the breadth of the pier, by the part KD=AH, say $\frac{1}{2}$ of the depth of the joint at the springing. This will never exceed one-fourth of the breadth, when two different rings of arch-stones rise from the same pier, unless the pier widen below. Call EK, therefore $=\frac{1}{4} b$.

We have now $ht = \frac{1}{2} b p + \frac{3}{4} b a$; whence,

1st, $b = \dfrac{ht}{\frac{1}{2} p + \frac{3}{4} a} = \dfrac{4ht}{2p + 3a}$, and consequently,

To find the least breadth of the pier at its base, divide the horizontal thrust by half the pier added to three fourths of the half arch. Multiply the height of the pier by the quotient.

2d, $h = \dfrac{b(\frac{1}{2} p + \frac{3}{4} a)}{t}$, that is,

The height of a pier to the springing, having a given base and weight, is found by adding the half pier to three fourths of the arch, multiplying by the breadth of the base, and dividing by the horizontal thrust.

$$3d,\ p=\frac{ht-\frac{3}{4}ba}{\frac{1}{2}b}=\frac{2ht}{b}-1\tfrac{1}{2}a\,;$$

or the weight of the pier cannot be less than the excess of the horizontal thrust multiplied by twice the height of the pier, and divided by the base, above one and a half times the semi-arch.

In the above determination it may be observed, that we consider the weight of the pier as independent of its base. Now, though it may be said with propriety, that the weight of the pier cannot be known until we know its thickness, which is the very thing sought, yet a little consideration will shew, that we may give different magnitudes to piers which have equal bases, and that, either by altering the outline of their sides, the density of their structure, the gravity of their materials, or the weight of solid matter over them, we may therefore, when the base is given, apply the weight necessary to keep the pier in equilibrio, provided this does not require the pier to be any more than a solid mass up to the roadway. Should the base assumed admit of the pier being much less than the solid parallelopiped, we may diminish it in various ways; as, 1st, By opening arches over the pier, where, in case of floods, we will procure an addition to the water-way; a practice very usual in the ancient structures: or, 2d, By tapering the pier towards the springing of the arches, or by making each pier only a row of pillars in the line of the stream, arching them together at top; a mode which may perhaps be objectionable in a water-way, but which would have a very striking and light effect in land arches. Something of this kind has been done by Perronet at the Pont St Maxence.

When piers indeed are to be exceedingly high, as in the columns which are sometimes employed in supporting a lofty aqueduct, the best way is to make them hollow, and give them stability, by enlarging the base. They will, in that case, press less on the foundations, be less expensive, and they may be greatly stiffened by hooping.

Indeed it is not usual to make piers solid all the way up to the road; the spandrel-walls are carried back so far as to unite with those of the neighbouring arch, are locked together by a cross wall just over the middle of the pier, having also walls longitudinally, and the whole arched or flagged over from spandrel to spandrel just under the roadways.

Nevertheless, as the case of solidity will enable us to assign a limit to the breadth of piers, which it may be proper to be acquainted with, we shall proceed in that investigation.

The weight of the pier in that case will be as the rectangle under its height and thickness, expressing the weight of arch and pier by the cubic feet of stone. The pier indeed will be somewhat more; for the sterlings or breakwaters, at each end, will add something to its stability; and this will be still further increased in proportion to the horizontal push, if the whole bridge be wider at the foundation than at top, as is very common. Excluding these collateral advantages, we shall consider the whole as rectangular, and then the stability may be found in the longitudinal section. We have already $b=\frac{ht}{\frac{1}{2}p+\frac{3}{4}a}$, and in the case of a parallelogram $\frac{1}{2}p=\frac{1}{2}b(h+c)$, c being the height from springing to the roadway. By substitution there arises $\frac{1}{2}b^2(h+c)+\frac{3}{4}ab=ht$; and by resolving this quadratic equation, we have

Theory.

$$b=\sqrt{\frac{2ht}{h+c}+\left(\frac{3a}{4(h+c)}\right)^2}-\frac{3a}{4(h+c)}$$

or thus, $b=\frac{\sqrt{2(h+c)ht+\overline{\frac{3}{4}a}|^2}-\frac{3}{4}a}{h+c}$ as a formula for the thickness of solid piers to support equilibrated arches; and it must be observed, that if the arch be understood to act otherwise than at $\frac{1}{4}$ the thickness of the pier, this coefficient may be altered accordingly.

Explanation of the formulæ.

As an example of the use of the above, take an arch of 100 feet span, six feet thick at the crown and semicircular. The horizontal thrust is $6\times50=300$ cubic feet; and let us take the weight of the half arch as $=1200$ at a medium, since, on account of the open spandrel, it may be considerably varied. Suppose the arch sprung at 18 feet high, then $h+c=74$

$$\frac{2ht}{h+c}=\frac{2.\ 18.\ 300}{74}=146,$$

$$\text{also } \overline{\frac{3.1200}{4.74}}\Big|^2=\left(\frac{3a}{4(h+c)}\right)^2=147.93,$$

and $\sqrt{146+147.93}=17.14$,

from which subtract $\frac{3a}{4(h+c)}=12.17$, we have 4.97, or 5 feet nearly, for the thickness of the pier, which is not one-twentieth of the span. In an example nearly the same as this, 13 feet has been given by an eminent mathematician for the thickness of the pier; but the reason is, that the stability which the pier derives from the superincumbent arch, has not been taken into consideration; an oversight the more extraordinary, since it is evident, that unless this weight did bear completely on the pier, it could have no tendency whatever to overturn it.

Suppose that c in the above formula is $=0$, or, what is the same thing, that the pier is carried no higher than the springing,

$$\text{we have } b=\sqrt{2t+\overline{\frac{3a}{4h}}\Big|^2}-\frac{3a}{4h}$$

And in an arch of the above dimensions,

$$2t=600,\quad \frac{3a}{4h}=\frac{3\times1200}{4\times18}=50, \text{ when squared } =2500$$

$\sqrt{3100}-50=55.68-50=5.68$ nearly, or about a seventh part more than the former. We see therefore how little the stability may depend on the mere weight of the pier.

We may have a proof of the accuracy of this determination, by comparing it with the formula first given for the thickness of piers, viz. $b=\frac{ht}{\frac{1}{2}p+\frac{3}{4}a}$, ht, or the overturning force, will be $300\times18=5400$.

Theory. The pier in the first case, taking it at 5 feet, will be $5 \times 74 = 370$, and $\frac{1}{2}p + \frac{3}{4}a$ will be $185 + 900$ or 1085; multiply this by 5, we have 5425, a little more only than the overturning force, as the thickness was taken at 5 feet, which is a little in excess. The reader, if he chooses to go through the calculation for himself, will find 4.97 agree exactly.

In the second case, the pier $= 5.68$ nearly, $\times 18 = 102.24$, and its half $= 51.12$, which added to 900, and multiplied by 5.68, gives 5402.3. A trifle in excess, because 5.68, like the former, is only an approximate number.

The weight of the pier in this case making so small a part of the whole resisting force, we may readily believe, that its total immersion in water would make no great addition to the requisite thickness. Stone, when so immersed, loses about $\frac{2}{5}$ of its weight, being in specific gravity about $2\frac{1}{2}$ times that of water; and, in the above example, were the whole pier under water, it ought to be about a fiftieth part thicker.

We have hitherto supposed the arch equilibrated, at least as far as is conveniently practicable, in which case the horizontal thrust is represented by the rectangle under the radius and thickness at crown. But if the equilibration of the arch has not been attended to, we must consider whether any uncommon weight about the shoulders may not produce, by the help of friction, a thrust in the arch fully equivalent to what would arise from a greater thickness at the crown; and our calculations are to be regulated accordingly.

On the other hand, we have given the arch a weight in the above example which is nearly that of solidity. But in general the arch weighs much less. The most common case, where the stability of the pier is any way doubtful, is when it carries no more than the ring of arch-stones, and before it is assisted by the weight of the superincumbent backing. The weight keeping the pier steady, is now much diminished; while the horizontal thrust is unaltered; for, if not propagated by weight, it is by means of the friction of the sections propagated to the pier, so as to act against it in the same manner as if completed.

Now, as it is by no means likely that the arch will be made thinner at the spring-courses than at the crown, while any additional thickness of the former is always in favour of the piers, we shall proceed upon the supposition, that a regular annulus, or ring of stones, is laid on them everywhere of equal thickness. Suppose this thickness, as before, to be 6 feet. In that case the semi-arch of the above dimensions measures 499.5, or 500 feet, and $\sqrt{2t + \left(\frac{3a}{4h}\right)^2} - \frac{3a}{4h} = \sqrt{600 + \left|\frac{1500}{4.18}\right|^2} - \frac{1500}{4.18} = 32.13 - 20.83$, or $11\frac{3}{10}$ feet for the breadth of the pier. But it is by no means likely that the arch would have 6 feet thickness of crown in these circumstances; 2, or at most 3 feet, would, in all probability be thought sufficient for a depth of keystone; and a ring of arch-stones 2 feet deep will require a pier of 9 feet only. If we build up the pier behind the springing for about 6 feet, this thickness may be reduced to 8 feet; and it will be absolutely necessary to do so in a case of this kind, to prevent the lower sections of the arch from sliding away.

The above example is taken for a semicircular arch; and though the reader must see, that the thickness of the pier is in no certain proportion to the span, it is nevertheless obvious, that those writers who derive it from that, have hitherto erred considerably in excess. It is usually stated at $\frac{1}{6}$ for semicircles; but we see, that in the most unfavourable circumstances, it need not exceed $\frac{1}{9}$ of the span, and may often be made much less. This, however, we state with limitation, referring to the height of pier above given; for were the pier much higher, it must be made thicker; if the pier be infinitely high, the weight of the arch sinks into insignificance, and the thickness, $= \sqrt{2t}$, which in the above arch 6 feet thick is $= 24\frac{1}{2}$ feet nearly, and in general, if the thickness at crown $= \frac{1}{n}$ of radius, then $\sqrt{2t} = \sqrt{\frac{2r^2}{n}} = r\sqrt{\frac{2}{n}}$, that is, taking s the span, $m = 2n$, the thickness $= s\sqrt{\frac{1}{m}}$; whence this rule for the thickness of a pier of infinite height. Find what part the thickness at crown is of the span, extract the square root, and multiply it by the span for the thickness; or thus, multiply the diameter by the thickness at crown, and extract the square root.

One of the loftiest bridges with which we are acquainted is that of Alcantara, over the Tagus, in Spain. It is stated by Don Antonio Ponz, in his *Viage d' Espana*, to consist of six arches, the two largest 110 feet in span, the water at the lowest is 42 feet deep; from the surface of which, to the beginning of the springing of the middle arches, 87; and from thence to the upper surface, 76; which, with the 4 feet and a half of parapet, make the whole 205 feet and a half, (more correctly, $209\frac{1}{2}$). Taking then the thickness at crown as equivalent to 16 feet, and the diameter 110, the thickness for an infinite height should be 42 feet. They are 38 in thickness, and 129 feet high. Let us now try this thickness by the general formula given in the earlier part of this Section.

The lower or immersed part 42 feet high, and 38 broad, is 1596; but of this $\frac{2}{5}$ are to be deducted on account of the immersion, leaving for that part 958. The pier from thence to the springing is 87 by 38, or 3306. We must suppose such a pier built up between the arches to at least $\frac{1}{3}$ of the height, or about 20 feet; but on account of a set off which appears in the design, we shall suppose the breadth still 38 on an average, which makes 760, and the whole pier 5024, and its half is 2512. To this add $\frac{3}{4}$ of the semi-arch; say $\frac{3}{4} \times 55 \times 16 = 660$, and we have 3172. By this number let us divide the product of the horizontal thrust and height of pier, that is, $16 \times 55 \times 129 = 113520$, and we find about 36 feet, very near

l breadth. Are we to look upon this near
ce as the effect of chance, of science, or the
the builder? We rather think of the first.

the arch is a segment less than a semicircle,
thickness of pier becomes necessary. For
continuing the same, we must either make
a part of a circle of greater radius, which
crease the horizontal thrust, or we must, in
obviate that, diminish the thickness at the
In either case the weight of the arch is di-
, and with it the assistance which it gives
ability of the pier.

a segment of 100 feet span and the versed
and suppose the pier 18 feet high, and the
et thick in the crown, as in last example.
ius of this arch will be 51.25, and the thrust
The weight of this arch will be less than
er; let us take it at 110.0, and if the calcu-
completed, as in the first example, the thick-
ier will be found =5.35 feet.

ppose the pier carried no higher than the
d ring of archstones, six feet thick, firmly
nto it. The half arch will be 443 cubic feet;
t will remain as before; and from the formula
$t+\frac{3a}{4h}\Big|^2-\frac{3a}{4h}$, we have for the thickness of
13.35 feet.

for a ring of stones 2 feet thick, we have
only.

other example, take a segment of 100 feet
h a rise of only 25 feet, or, in other words,
of 120 degrees, let the height of the pier
ical thickness be as before. The radius will
eet, and the thrust, where the crown is 6
k, will be 393, taking the half arch at 775;
for the pier 7.46, and a similar increase be-
cessary in the other cases.

versed sine of the same arch be reduced to
the radius is then 130 feet, and thrust =780,
being taken as every where 6 feet, we find
ly 40 feet as the thickness of pier: it will
ly 40 feet if a horizontal arch with joints
a radius of 130 feet be introduced in its
The enormous thickness of pier which be-
cessary for these flat segments, precludes, in
easure, the possibility of employing them in
and indeed we do know, that a horizon-
of 100 feet must be, in a great measure, a
structure.

is an interesting subject of enquiry, which
be unappropriately noticed here, we mean the
rsed sine that can be used for arches in pro-
o the span. We conceive this, however, as
measure a practical question. We have al-
ven some idea of the greatest possible arch
or brick; a segment of that circle may, of
be employed in any situation, but the piers
ch be of considerable span and height to the
) must be made very great. Indeed the
tion depends intimately on the thickness of
We ought to know the dimensions of the
ier that can be trusted, and this, we con-
pends chiefly on the care of the mason; for stone, and especially cement, is a compressible substance; and when an arch is very flat, a very small yielding at the springing produces an enormous depression at the crown, insomuch that there may be reason to dread, lest the arch pass down below the horizontal line, and fall to pieces before the stability of the abutments can be acted upon. A compression in the joints is equivalent to a yielding at the abutments, and appears equally difficult of remedy.

In great horizontal thrusts, where the segment is flat, the immersion of the pier in water comes to have an important effect. On the weight of the pier, in those cases, the stability chiefly depends, and a deduction from that of two fifths must be compensated by enlarging the thickness. For example, in the arch of 100 feet span, with 25 feet rise, and piers 20 feet high, the ring of stones of 3 feet at the crown may be set on a pier of 14 feet broad, taking the half arch at 180 feet. But if the pier be set in water to the springing, it will lose $\frac{2}{5}$ of its weight; and its breadth must be increased nearly to 16½ feet ere it has the same degree of stability as before. The truth is, that in this case the stability derived from the pier itself is nearly as much as that derived from the arch, (conceiving this always concentrated in the middle of the half of the pier,) a diminution of $\frac{2}{5}$ from the pier, therefore is $\frac{1}{5}$ of the whole, and must be provided for by an increase of breadth, not just equal to $\frac{1}{5}$; for we must observe, that the stability derived from the arch is also increased thereby.

But indeed the immersion of the pier, if it be very tall, that is, if the depth of water be great in proportion to the span, will demand attention, although the arch should not be very flat. In such a case, the stability arising from the pier is often as great as that which is derived from the weight of the arch. It can seldom be greater, and consequently can seldom require an addition of more than one fifth of that breadth, which would be sufficient were there no immersion.

We might easily give a theorem for this in rectangular piers; but it is hardly worth while; the effect of any addition is easily determined in the first formula, which we think, on the whole, although only tentative, the most convenient rule for the practitioner.

But although the total immersion, even of a lofty pier, will seldom require any great alteration in the thickness, there is yet another circumstance which well deserves attention. Bridges are often built, especially in a tide-way, with the arches springing below the high waters; we have in that case a diminution from the weight of the arch itself, but unless the keystone be under water, the horizontal thrust is unchanged; we must, accordingly, in our calculation, make the same diminution for that part of the arch which is thus immersed, as we did in the above example for the piers. The result will oblige us still more to increase the thickness of pier.

On the whole, we may conclude from this investigation respecting the piers, that the increase of breadth which may be, and usually is given to the pier, is of much less importance, on account of the weight that is thereby gained, than by its increasing the length of that arm of the lever, whereby the weight of the whole resists the effect of the horizontal thrust oversetting it.

Instead, therefore, of building up the pier with perpendicular sides, we should think it more advisable to begin the foundation of the pier on a base much wider than usual, and from thence, by regular recesses, or otherwise, gradually to diminish it, until, at the springing of the arch, it does not exceed the depth of the two archstones, while the outline of the pier may be a curve of any shape that is most pleasing. Many advantages would, in our opinion, be obtained by this construction: the water way will be enlarged; the pier equally strong; the stability equally great, nay, much greater than usual; and the chance of the foundations being hurt in floods will be greatly diminished: and all this with a smaller quantity of materials.

Before we take leave of the stability of piers, it will be proper to request the reader's attention a little longer to a case which we have hitherto but slightly noticed, we mean when the waters come to encroach on the crown of the arch. In this event, the stability arising from the arch is diminished by the loss of weight in all that part which is immersed. The horizontal force acts as before; it will be propagated through the immersed archstones. The weight of the pier is diminished by the immersion. All this must be compensated by an increase of breadth in the pier.

Suppose the waters to rise to the key-stone, the horizontal thrust is still unaltered, and is propagated as before; the intermediate archstones, however, lose two-fifths of their weight, and, supposing them jointed to equilibration, they will all have a tendency to rise and slide up. This is particularly the case with the lower stones of an arch with radial joints, for we know that these have such a tendency independent of this. What therefore is there to prevent them? Their mutual friction, and the back or lateral pressure only. Their friction, however, is now much diminished, and so is the weight of the backing, on account of the immersion.

PLATE LXXXI. Fig. 5.

In drawing the limit of position for the joints to be equilibrated by friction, therefore, in Fig. 5. we ought to diminish the lengths on the line, the key section only excepted, and observe the effect on the position of the joints; the general effect will be, to make these joints approach nearer to the vertical, or, in other words, to draw them to lower centres; and, if we are so inclined to admit of the arches being flatter segments, this observation is of use, and should be attended to in the formation of culverts, &c. which are often glutted.

Suppose, now, the waters to rise even higher than the keystone, the weight of the keystone itself being diminished, the arch will be in the very same predicament as if it were formed entirely of materials of a smaller specific gravity than before, and its chief danger will arise from the transverse action of the stream tending to overset it.

This will be the case when the water, having free ingress through the materials, or through the gutters of the bridge, rises as fast in the interior of the building as without. But this is not always to be expected. The side walls, or parapet, may be so formed, as not to admit the water to enter, at least not with sufficient rapidity. The arch itself, we are sure, will not, for it is all laid in mortar. Now, in the event of the arch being formed with open work in the haunches, it will not, we think, be going too far to say, that there may be a point to which, if the waters arrive, the whole weight of the arch may be balanced by the hydrostatic pressure upon the intrados; and in that case, it would be shoved off in one mass by the pressure of the stream.

This is by no means even an improbable supposition, for the key-stone itself will begin to move whenever the waters rise one and a half times its thickness above the solid matter at the crown; and it will readily be granted, that every other section is pressing strongly upwards by that time. It may, indeed, be alleged, that the pressure of dead weight over them would keep them down long after that, and this we do not deny; but the derangement which it is likely will have taken place among the lower stones, by such a pressure acting from the points of the wedges, will, in all probability, be such as to render the destruction of the arch inevitable.

For example, take a stone of a foot square, and 4 feet deep in the soffit, near the springing of an arch of 40 feet rise; suppose the arch full, this stone is pressed back with the weight of 40 cubic feet of water; that is, a force of four times its own weight, and as a similar force, though gradually lessening, acts upon every other stone to the crown of the arch; it is, we think, very obvious, that their united effect is likely to be of much more consequence than the thrust of the archstones.

But we may find another opportunity for rendering these motions somewhat more precise, by subjecting the forces to calculation, when we come to treat of CULVERTS, under INLAND *Navigation*, the chief case where such a process is likely to occur; and which, from that circumstance, require some peculiar maxims of construction.

OF THE FALL UNDER BRIDGES.

The piers of a bridge form an obstacle in the way of the waters, and will cause them to rise above the general level. The same body of water which flows in the open channel must be conveyed through the openings of the bridge. The narrower that passage is, the swifter must be the current. And this additional swiftness is only to be produced by a descent from a greater height. Consequently, the water will accumulate above the obstruction, until it runs off as fast as it comes, or until the velocity in the contracted water-way be to that in the open channel, reciprocally as the relative sections of the stream.

Granting that the velocities of the running water are such as would be produced by falling from a certain height above the stream, a principle which is at any rate sufficiently just for our purpose, it follows that the fall, or accumulation produced by the obstacle, will be measured by the difference between the heights which would be requisite for producing the two velocities, viz. of the river in general, and

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of the current just under the bridge. But if a body fall a feet in a second of time, it acquires a velocity of $2a$ feet per second, and the heights are as the squares of the velocities; wherefore, in order to produce the velocity v, we must suppose a fall from a height $=\frac{v^2}{4a}$ or $\frac{v^2}{164}$ expressing v in feet, and neglecting that small fraction, whereby the fall of a heavy body in one second exceeds 16 feet.

But when water is forced from a larger channel through a smaller passage, it is observed, that the stream through this passage is contracted. This contraction has been variously stated. It is probable, that the ratio of the diameter of the contracted stream to that of the passage, is that of 4 to 5, or .8 to 1, according to Bossut, Michelotti, and Venturi.

Buat gives - 6 to 9, or .666 to 1.
And Newton 21 to 25, or .84 to 1.

Consequently, if c express the breadth of the water-way between the piers, $\frac{4}{5}c$ is the water-way contracted; take b the breadth of the channel, $\frac{4}{5}c : b :: v : \frac{5b}{4c}v$ the velocity in the contraction; and to produce this velocity, we need a height, or fall, of $\overline{\frac{56v}{4c}}\Big|^2 \div 64$, and the difference between that and the former, or that which produces the original velocity v, will be $\overline{\frac{5bv}{4.8.c}}\Big|^2 - \frac{v^2}{8^2}$ the fall sought; or $\left(\overline{\frac{5b}{4c}}\Big|^2 - 1\right)\frac{v^2}{8^2}$ will also be a theorem for it, which may be thus expressed.

Add one fourth to the breadth of the river, and divide the sum by the water-way under the arches; from the square of the quotient subtract unity; and multiply the remainder by the square of one eighth part of the mean velocity of the stream for the fall in feet.

Upon this principle, the following Table is constructed. It is not so complete as could be wished, for a great deal depends on the depth of the river; the effect of which is not so easily ascertained, and the due consideration of it would extend our investigations much further than the present subject would warrant. We may find another opportunity to communicate some further researches on this matter; and, in the mean time, what we give here will, we think, be of no small value to the engineer and practical bridge-builder. We have given a separate column for the usual designation of the stream, and for the nature of the bottom, which will just bear the velocities expressed in the first column, that the use of the Table may be extended and facilitated. For, by this means, a look at the bottom will determine the state and velocity of the river, without the necessity of measuring it. We next give the head or fall produced by various obstructions, and the velocity thereby acquired, from whence we are enabled to form an idea of the action likely to take place upon the bottom.

The rise of Water produced by Obstructions to the Current, as square ended Piers, or abrupt Projections.

Velocity.		*Description of River.*		*Obstructions.*									
				$\frac{1}{12}$		$\frac{1}{10}$		$\frac{1}{8}$		$\frac{1}{6}$		$\frac{1}{4}$	
Per sec.	P. hour.	The current, usually termed	The bottom, which just bears such velocities,	Head of water, and velocity produced at the obstruction in feet.									
Ft. In.	Miles.			Head.	Vel.	Head.	Vel.	Head.	Vel.	Head.	Vel.	Head.	Vel.
$\frac{1}{4}$ or 3	$\frac{1}{6}$	Dull	Ouse and mud	.0008	.34	.0009	.35	.0010	.36	.0012	.37	.0017	.42
$\frac{1}{2}$ or 6	$\frac{1}{3}$	Gliding	Soft clay	.0034	.68	.0036	.69	.0041	.73	.0049	.75	.0069	.83
I.	$\frac{15}{22}$ or $\frac{2}{3}$	Smooth	Sand	.0134	1.36	.0145	1.39	.0162	1.46	.0197	1.5	.0276	1.66
II.	$1\frac{4}{11}$	Uniform tenors	Gravel	.0536	2.73	.0580	2.68	.0650	2.93	.0788	3.	.1104	3.33
III.	$2\frac{1}{22}$	Ordinary Freshes	Pebbles	.1207	4.09	.1305	4.06	.1462	4.39	.1773	4.5	.2484	5.
IV.	$2\frac{8}{11}$		Shivers and chingle	.2146	54 5	.2320	5.45	.2600	5.86	.3152	6.	.4416	6.66
V.	$3\frac{9}{22}$	Extraordinary Floods and rapids	Boulders and soft schistus.	.3353	6.82	.3625	6.94	.4062	7.32	.4925	7.5	.6900	8.33
VI.	$4\frac{1}{11}$		Stratified rocks	.4828	8.18	.5320	8.33	.5840	8.78	.7092	9.	.9936	10.
X.	$6\frac{9}{11}$	Torrents and cataracts	Indurated rocks	1.341	13.64	1.45	13.9	1.625	14.6	1.97	15.	2.76	16.3

The rise of Water produced by Obstructions to the Current, &c.—Continued.

Velocity.		*Description of Rivers.*		*Obstructions.*									
				1/3		1/2		5/8		3/4		7/8	
				Head of water, and velocity produced at the obstruction in feet.									
Per sec. Ft. In.	P. hour. Miles.	The current, usually termed	The bottom, which just bears such velocities,	Head.	Vel.	Head.	Vel.	Head	Vel.	Head.	Vel.	Head.	Vel.
1/4 or 3	1/6	Dull	Ouse and mud	.0024	.468	.005	.87	.016	.83	.023	1.75	.096	2.5
1/2 or 6	1/3	Gliding	Soft clay	.0098	.937	.020	1.75	.039	1.66	.094	2.5	.386	5.
I.	15/22 or 2/3	Smooth	Sand	.0393	1.875	.082	2.5	.158	3.33	.375	5.	1.516	10.
II.	1 4/11	Uniform tenors	Gravel	.1572	3.75	.328	5.	.632	6.66	1.500	10.	6.184	
III.	2 1/22	Ordinary Freshes	Pebbles	.3537	5.62	.738	7.5	1.422	10.	3.375		13.914	
IV.	2 8/11		Shivers and chingle	.6288	7.5	1.312	10.	2.528		6.00		25.	
V.	3 9/22	Extraordinary Floods and rapids	Boulders and soft schistus	.9825	9.37	2.050		3.950		9.375		38.	
VI.	4 1/11		Stratified rocks	1.4148	11.24	2.952		5.688		13.5		56.	
X.	6 9/11	Torrents and cataracts	Indurated rocks	3.930		8.20		15.8		37.5			

We have already admitted, that this Table is incomplete, yet it will, in all probability, answer many useful purposes. The science of hydraulics is as yet so empirical, that we can seldom predict with certainty what will be the result of a proposed combination. It is probable that the fall or head, and consequently the velocity acquired, is always stated too high, at least in the earlier part of the Table. For the contraction of one fifth of the breadth, is nearly as much as is observed in a narrow pipe. We have, indeed, made no allowance for the contraction or diminution of effect which may be supposed to arise from the friction and other causes in the original bed of the river. Or, what is the same thing, the additional head which is requisite to overcome this friction, over and above that which is due to the assumed velocity of the stream. And again, the friction increasing under the piers, from the increased velocity of the stream, will require also an additional head of water to overcome it. This, in small velocities, and with small obstructions, is a very great part of the whole rise. Its proportion diminishes in the latter part of our Table. So that, in all useful cases, it is likely to be nearly counterbalanced by the great rate of contraction we assume.

In order that the Table should be complete, we must divide it into two parts, one referring to the velocity, and the other to the difference of level of the river's surface, for a space equal to the breadth of the bridge. The depth, too, is a material consideration in discovering the acquired velocity. But we do not see the importance of these *minutiæ*, for the requisite *data* are not to be obtained with similar exactness.

As an example of the purposes to which this Table may be applied, let us suppose that a bridge is to be built over a river of 100 feet wide, the usual velocity of which is 3 feet per second, and, of course, the bed is in all likelihood composed chiefly of round pebbles. Let these pebbles and gravel be supposed to extend to the depth of 3 feet, and under that a stratum of fine firm clay. Let it be proposed to give the bridge a water-way of 75 feet, that is to say, two abutments projecting 4½ feet each, and two piers of 8 feet thick each, a centre arch of 35 feet, and two side arches of 20 feet span each. It is only proposed to lay the foundations two feet below the bed, and to spring the centre arch 2 feet above the usual waters, giving it a rise of one-third of the span. Let us inquire whether such a structure is likely to be durable.

From the Table it appears, that the obstruction being one-fourth, and velocity 3 feet, the head will be .2484, or about 3 inches, and is therefore not likely to encroach on the crown. But the velocity under the bridge will be 5 feet per second, and, of course, would require boulder stones or rock to withstand it; the gravel bed will therefore be cut up under the bridge, and to a depth which, although not easily predicted, is likely to be that which will make the area of the section of the current, allowing for contraction, as great as where the river is free. For this will restore the original velocity, and prevent farther damage, provided the pebbly stratum holds to that depth; for should the strata below be harder or coarser the damage will be less, and if softer the contrary.

Suppose, again, the depth of the river, in its usual tenors, to be 3 feet at the left, and 4 feet at the right pier. Nothing is more common than such a difference of depth; and it is to be observed, that, whatever may be the cause of the inequality, the erection of the bridge does little or nothing to remove it. We may therefore suppose the inequality of depth as likely to continue, whatever other changes are produced.

	At left Pier.	At right Pier.
Original depth in feet	3.	4.
Increase for obstruction, 1/3 .	1.	1.33
	4.	5.33
And 1/4 for contraction on the above principle	1.	1.33
New depth being as required velocity	5.	6.66
Deduct original depth . . .	3.	4.
Depth cut by the river, in feet	2.	2.66

The depth cut in the uniform stratum will not, indeed, be quite so great as this; for the matter excavated will be thrown up as a bar across the river below the bridge, and will add to the depth by heightening the surface of the water.

The left pier, then, which is only founded two feet under the bed, may stand well enough, but the right pier is in manifest danger, being undermined nearly eight inches. It must therefore be laid deeper. It will not be safe, however, in proceeding deeper with the foundation, to expose the smallest part of the clay; for that will move off with a less velocity of current than the gravel or pebbles, and the pier will be still further endangered. Our Table shews us, that it will not bear one-third of the velocity of this stream, and, consequently, runs the risk of being excavated to a great depth indeed. The only safety is in the gravel rolling into the hole thus formed, and ultimately stopping it, not, however, without leaving the pier in a dangerous situation.

Suppose further, that the river is liable to floods, and that, from observations of its higher marks, it is thought that the channel may be in that case 200 feet wide and 6 feet deep, and the progress of the freshes about $3\frac{1}{2}$ miles per hour. What will be the consequence of such an accident happening after the bridge is built over it?

If we take the depth of the river at 6 feet on an average, the water-way under the bridge is only $\frac{3}{8}$, and it is probable that the diminution of depth towards the shores will be made up by a greater depth in the channel, suppose 9 feet: This would encroach on the crown, and place the bridge in a still more dangerous predicament. Yet adhering to the supposition of an obstruction of $\frac{5}{8}$, we find, that for a velocity of 5 feet (3.4 miles), the head is 3.950, or about 4 feet, and the acquired velocity $16\frac{2}{3}$ feet per second. This will produce an absolute cataract, and will sweep out stones, gravel, and clay, to such a depth, if continued even for a short time, as will undoubtedly destroy the structure. A pavement, or even an inverted arch, will be an ineffectual preventative, in a case like this. But that we may see the result more distinctly,

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Let us state the general depth	=6
Add for obstruction $\frac{5}{8}$ or	3.75
	9.75
For contraction $\frac{1}{4}$ or	2.44
	12.19
This gives the depth under the bridge when the general velocity is restored, viz. 5 feet.	
Add $\frac{2}{3}$ to bring it to tenor velocity	8.09
It will cut in the pebbles till the depth is . .	20.28
But there is only	9
So that it cuts below the bed	11.28

But as there is only 3 feet of pebbles, it passes to the clay; and as this will not bear more than $\frac{1}{3}$ of the common velocity, the river will cut in it until the depth be 60.84, which is far below any security that can be given to the structure, without a total change of the foundation.

We assumed, for the breadth of the actual water-way in the above Table, a rate of contraction, which is much the same as that observed in the diameter of a jet from an orifice in a thin plate. This may be going too far, but we think it advisable to keep the builder on the safe side of the limits of practicability. Square ended piers, and abrupt projections, are likely to produce as great a degree of contraction, especially when the river runs in floods, the only case that is particularly deserving of attention.

But the discharge through the arches will be materially improved, by forming the piers with pointed sterlings, and otherwise adapting them to the figure of the stream. In rivers, where the arches are wide in comparison of the depth of water, the contraction does not appear to amount to a fourth of the above, or one twentieth of the whole water-way. And in this, we are confirmed by the experiments of Eytelwein and Bossut. The former of whom states the contraction, in such a case as this, to be from 8.02 to 7.7, or nearly $\frac{1}{21}$.

We have, therefore, calculated the following Table upon the principle of a contraction of $\frac{1}{20}$; and conceive, that when circumstances are most favourable, allowing for the additional friction caused by the obstruction, &c. it will be found to come exceedingly near the truth.

The Rise of Water produced by Obstructions to the Current, when formed to diminish Contraction, as Piers with pointed Sterlings, &c.

Velocity.		*Description of River.*		*Obstructions.*									
				$\frac{1}{11}$		$\frac{1}{10}$		$\frac{1}{8}$		$\frac{1}{6}$		$\frac{1}{4}$	
				Head of water, and velocity produced at the obstruction in feet.									
Per Sec. Ft. In.	P. Hour. Miles.	The Current usually termed	The Bottom, which just bears such velocities	Head.	Vel.	Head.	Vel.	Head.	Vel.	Head.	Vel.	Head.	Vel.
$\frac{1}{4}$ or 3	$\frac{1}{6}$	Dull	Ouse and mud	.0003	.28	.0004	.29	.0004	.30	.0006	.32	.001	.35
$\frac{1}{2}$ or 6	$\frac{1}{3}$	Gliding	Soft clay	.0011	.56	.0014	.58	.0017	.60	.0023	.63	.004	.7
I.	$\frac{15}{22}$ or $\frac{2}{3}$	Smooth	Sand	.0045	1.13	.0056	1.16	.0069	1.20	.0091	1.26	.015	1.4
II.	$1\frac{4}{11}$	Uniform tenors	Gravel	.0182	2.27	.0225	2.33	.0276	2.40	.0364	2.52	.060	2.8
III.	$2\frac{1}{22}$	Ordinary Freshes	Pebbles	.0409	3.40	.0507	3.39	.0621	3.60	.0819	3.78	.135	4.2
IV.	$2\frac{8}{11}$		Shivers and chingle	.0728	4.54	.0902	4.66	.1104	4.80	.1456	5.04	.240	5.6
V.	$3\frac{9}{22}$	Extraordinary Floods and rapids	Boulders and soft schistus	.1137	5.68	.1410	5.83	.1725	6.00	.2275	6.30	.375	7.0
VI.	$4\frac{1}{11}$		Stratified rocks	.1658	6.81	.2030	6.99	.2484	7.20	.3276	7.56	.540	8.4
X.	$6\frac{9}{11}$	Torrents and cataracts	Indurated rocks	.4550	11.36	.5640	11.66	.6900	12.0	.9100	12.60	1.500	14.

[illegible]	.0
[illegible]	.5
[illegible]	1.
[illegible]	1.
[illegible]	9.
[illegible]	17.
[illegible]	27.1
[illegible]	35.0
[illegible]	108.6

[illegible] *Waters.*

[illegible]	3	4
[illegible]	1	1.33
	4	5.3
[illegible]	.2	.26
	4.2	5.6
[illegible]	3	4
[illegible]	1.2	1.6

[illegible] common waters.

[illegible] *Floods.*

[illegible] 6
[illegible] 3.75

9.75
[illegible] 49

[illegible] general velocity restored, [illegible] feet per second . . . . } 9.
[illegible] to tenor velocity . . 6.

[illegible] stratum will be cut until [illegible] . . . . } 1

But [illegible] only . . . .

[illegible] will be cut below the bed . . . .

[illegible] the pebbles extend only to [illegible] to the clay, which [illegible] this velocity, and would therefore [illegible] 15.69, or 56.69 below the bed. [illegible] cannot stand in such floods as [illegible], then, that it be proposed to make a [illegible] as, by paving all across [illegible] ration, referring to the [illegible] of [illegible], and velocity 5 feet

6

roduced is 2.6725, and velocity 14 feet per
which would require a bottom as firm as so-
k. With good workmanship, however, the
nt would stand a considerable time, especially
oints were so carefully closed that water could
dily penetrate, and work out the finer mate-
which the pavement was bedded: For, al-
the water passes through the arch with this
ipidity, yet the general river being in a diffe-
in, and running with a much smaller velocity,
bring along with it much heavier materials
e gravel and pebbles of the bed, and these
be very injurious to the artificial bed at the
For we are of opinion, that it is by no means
ion of the water, but rather the attrition, or
g and rubbing of the boulderstones, gravel,
d, brought down by it, that renders the hard-
liable to be cut up by the force of a swift
stream. It is, nevertheless, extremely dif-
to secure a pavement, or inverted arch, in a
hat the water will not ultimately carry it
ven when the river does not run foul in its
The great velocity which has been commu-
to the river, cannot be supposed instanta-
to change upon passing the obstruction.
of that, we see a swift current shooting along
ne of the arches for a great way below the
while powerful eddies run up in the line of
s, casting up at length banks or shoals behind
hich tend, in their turn, to strengthen and
the original current and eddy. Whatever
herefore, we take to secure the pavement or
arch, this strong current must cut up and carry
e materials of the bed behind them; an ope-
which, if once begun, must constantly go on
creasing force. The water will have a fall
lower end of the pavement, and will gradually
ut the foundation of the outer course of
which being immersed in water, will not be
to move. A few stones dropping out will
he power of the stream, by roughening the
Course will loosen after course, until the
resents only a loose mass, ready to be torn
swept away by the first ensuing flood in the

ould wish that what we have said here may
persons properly qualified to turn their at-
to the subject. We are convinced it is one
most important departments of the art of
uilding. Mathematicians have bestowed much
d pains on the equilibration of arches,—a
bout which the common bridge builder sel-
ms very solicitous. We have seen that, in
the usual speculations of that kind have hither-
no one useful practical result. Nay, if the
ns of the theory were to be followed too im-
they may lead, as in the case of the catenaria,
the flat arch, to the proposing of weak-
ead of strength, and craziness instead of sta-

he security of the foundation is that about
he practical man is, with reason, most so-
He knows that it demands his greatest care.
in that is irremediable, and there it is that
generally fails. Give the ancient mechani-
a place to stand on, and he would have moved
the world; give the modern engineer only a sure foundation, he will raise a structure as durable as the materials of which it is composed.

Of the Sterlings or Extremities of the Piers.

Of the sterlings.

The reader must before this have seen, that there would be a great impropriety in forming the ends of our piers into planes at right angles to the stream; the water which is thereby shot off abruptly to each side, obstructs the general current by contracting the section, makes an increase of velocity necessary, which at the same time increases the action on the bottom, and hastens the downfall of the structure.

The bridge-builder, therefore, has in all ages endeavoured to obviate or diminish this contraction, by building projecting sterlings, or breakwaters, towards the stream, with the intention, as it were, of splitting the current, and conveying the waters more quietly under the arches. Those which point down the stream in rivers without reflux, were at first perhaps built only for the sake of uniformity; for although probably little less important than the other, they do not, as they are generally formed, seem calculated to serve any good purpose.

Plate LXXXI. Fig. 7.

The form of the sterling has given rise to some discussion, and bridge builders do not yet seem agreed on what is the best. For the most part, they have been formed into an isosceles right angled triangle in the horizontal plan, having the right angle facing the stream; from a notion, perhaps pretty general among workmen, that this is of all angles the strongest. The projecting edge rises perpendicularly till above the surface of the water, and the spring of the arch; what is higher being merely matter of ornament, need not be mentioned here. At other times, the plans of these cutwaters or sterlings have been formed into two arches, of 60° each, described from the two angles of the pier, into a semicircle, or semiellipse, on the conjugate; or into other and probably fanciful figures, as in Fig. 7. Nor are these different methods without their advocates. Thus it is said for the right angle, that it divides the stream best, and a more acute angle would be too weak; that the semicircle and semiellipse, are best calculated to resist the shock of a loaded barge, or the like; and the Gothic intersecting arches, combine in some degree the advantages of both. But it is evident, we think, that if there be any form, which really deserves a preference over all others, it must be that which is adapted to the figure of the contracted stream; and which delivers the water in such a manner, as totally to fill the breadth of the archway. Unfortunately, however, our notions of the motions of fluids, are yet so far from being precise, that it is a matter of no small difficulty to discover what figure is best adapted to the purpose in view.

That we may have the clearer conception of this matter, let us attend a little to the way in which a fluid in motion may be supposed to act upon any obstacle.

Plate LXXXI. Fig. 8.

The particle moving in the direction EF (Fig. 8.) would strike the pier with the whole of its force, if the end of the pier was in the line AC, and the number of these particles will be as AD; but when the end is formed into the triangle ABC, the effect of

PLATE LXXXI. Fig. 7.

each particle on the plane AB is diminished in the proportion of the sine of its incidence EFB; and the action on the face being given, the effect of it in the direction BD, or parallel to the axis, will be found by still further diminishing it, in the ratio of the sine of obliquity. In the common case then, when the length of the pier is in the line of the stream, the resistance of the pier will be as the square of the sine of incidence, or it will be inversely as the square of the length of the face AB of the pier, that being a straight line. Otherwise, if EF represent the absolute force of any particle, draw the perpendiculars FG, EG, and GH, then FG exhibits the impulse perpendicular to the force AB, and FH the effect of that impulse in the direction of the axis BD; where, by the way, it may be observed, that if the angles DAB and DBA be equal, that is, if ABC be a right angle, then are FG and GE equal, also FH and HE; so that the absolute impulse on the sides of a rectangular wedge is just half the impulse on its base. We might pursue this mode of reasoning much further. We should find among other things, that the absolute impulse on right lined triangles, is less than on any curvilineal figure; that the impulse on cylinders, or the front of half cylinders, is just two thirds of the direct impulse on the base; that in all other curves, the nearer they approach to the right lined triangle, the less is the impulse upon them; and it is sufficiently evident, that the impulse will be always the less the more acute we make the vertex of that triangle, that is, the greater projection, and the sharper a point we give to the pier.

This is the way in which De la Hire, Emerson, and other writers, have treated the subject. They give equations expressing the properties of different forms of sterlings; the whole being derived from the common theories of the resistance of fluids, conceiving the impulsion of the particles of the fluid to be the same as in the collision of hard bodies in free space.

But it is needless to follow this theory much further. We are convinced that it is founded altogether upon an improper assumption; and, at any rate, it is of small importance to the point in question. We think it may even reasonably be doubted, whether the best form of the sterling be merely that which gives least resistance to the stream. Should we not rather enquire after that which guides with most effect the water under the arches, and prevents the dangerous action on the foundation? At all events, we cannot concede, that the mode of action of the particles of water is the same which the above theory supposes, and which is commonly employed by writers on this subject. It would lead us into too wide a digression, to state the reasons which may be given against this doctrine of impulsion; besides, we shall have another opportunity of considering the subject more at length. See HYDRODYNAMICS.

We shall, therefore, at present, only exhibit, in a familiar way, the notion we have of the real action of a fluid in motion, which, although it may be more difficult to adapt to the precision of mathematical reasoning, will, we are convinced, be of more value to the practical builder, in giving him clear conceptions of the actions against which he is to provide.

PLATE LXXXI. Fig. 9, 10.

Let *ab* BA, Fig. 9. and *cd* DC, Fig. 10. be a thin film of water, which has advanced against the flat end AB, CD of the pier, and whether the first lamina of particles act by impulsion or not,—for this is not a place for metaphysical discussion,—let another and another succeed, until at length they constitute a plate or film *ab* BA, or *cd* DC, possessed of the properties of a fluid. This film will have had its direct motion destroyed by collision with the flat end of the pier. It cannot flow back, for it is stopped by the adjoining and following waters. Let us suppose it, for a moment, to be stationary. The second film now comes on, and being hindered from passing up to the pier by the first film, *ab* BA, can produce nothing like impulsion upon the pier, but it will propagate its force through the fluid film, in the way in which only a force is propagated through fluids; that is in every direction. The pier, therefore, will receive the impression of the second film unimpaired, but in the way of a pressure only, not as an impulsion.

In the mean time, the first film which is compressed between the pier, and the second film advancing, and the waters of which cannot as yet move off sidewise, being opposed by the other parts of the stream, hitherto supposed to be at the same level, must obey the hydrostatical law, and yield to the impression received, by its waters rising upwards, the only way in which they are free to move. There will be an accumulation C*ef* immediately before the pier. The second film will also be raised upon the same principle, but not so much; the third will be somewhat less than the second, and so on.

Now, it is evident, that the superficial waters of this accumulation being so much higher than the rest of the stream, must tend to slide off on all sides. This sliding off will cast them down in inclination towards the edges, and of course the greatest elevation will be just in the middle between A and B. At the same time, the same pressure which produces this accumulation, or, if it may be so considered, the very accumulation itself will propagate, in every direction, through that film, a corresponding pressure. This will enable the waters of the film to escape at each side, by pressing transversely on the passing current. No water could so escape without such an accumulation as we speak of; for the passing stream, being otherwise at the same level, would react with an equal pressure.

The notion, therefore, of the particles of water being reflected as in the collision of bodies in free space, cannot be entertained. Speculations founded upon that principle leave out the most remarkable feature of the case, viz. the fluidity of the water. Yet a trifling attention to that circumstance, renders the notions throughout the whole process much more familiar. We have established the fact of the accumulation of the fluid immediately in front of the pier. It is evident that no force whatever can be propagated through the fluid, without such an accumulation; we may therefore consider at once the accumulation as the cause, mark, and measure of every subsequent modification of the passing stream, and we will find it fully equal to the explanation of all the phenomena.

Of the film of water in the immediate neighbourhood of the pier, every part is urged laterally with the same force, viz. the excess of pressure produced by the accumulation. And, upon the supposition that all the water of the passing stream proceeds with the same velocity, which, by the way, is not strictly true, we might conclude that the deflection produced at the shoulder of the pier is the same at any depth. Now this deflection will have some proportion to the velocity of the stream. It evidently depends on the rapidity of the current. In the language of mathematicians, it will be a function of that velocity. Suppose, for a moment, that the velocity of the lateral discharge at the shoulder of the pier be equal to that of the current, it is plain that these waters, with those which are immediately contiguous in the stream, moving parallel to the side of the pier, would be projected in the diagonal of a square which had the side of the pier as its side. In that case we must suppose a certain space immediately behind the shoulder of the pier to be void of water; and at the same time, this sort of repulsion will produce a head of water, or accumulation in the stream, immediately beyond that void space. This accumulation will be propagated from the shoulder of the pier, as a centre across the arch, at the same time it will be carried down the stream; and accordingly, we do always see a wave, which proceeds from each sterling or abutment of an arch, and which meet perhaps a considerable way below the bridge: but, at the same time, and what is of more importance, the waters, which are, as it were, projected from the shoulder of the pier, are not at liberty to proceed in that direction; having on one side the void space above mentioned, they are repelled on the other, by the lateral and hydrostatic pressure of the general mass. This will, of course, act perpendicularly to their direction, and produce ultimately a sort of gyration or revolution. The superficial waters will likewise tend to run over and descend into the void; as they descend, they are exposed with the lower waters, to the lateral pressure of a greater depth; the gyration will become more rapid in descending; and its radius of curvature shorter. The void will assume the appearance of a hollow cone, the apex pointing downwards. The descending water will at length strike the bottom, and be reflected upwards; the motion of the apex will still be the most rapid, and will thereby produce that boiling appearance which we generally see towards the tail of the pier, and for a good way below the bridge. The general current is no sort of obstruction to this reflection from the bottom; it is perpendicular to its direction, and therefore neither helps nor hinders it, but it is the cause why the vortex is at first elongated in the direction of the stream, and why, after reflection from the bottom, it reappears considerably below the place of its original formation.

We have as yet taken into consideration the effect only of that film which lies in the immediate neighbourhood of the pier, and assuming it to pass laterally with a velocity equal to that of the general current; we have supposed that the primary deflection will be at an angle of 45°, but the second, third, &c. films, which are in the front of that, will have a similar lateral discharge, and will therefore have deflected a part of the waters of the general current, before they have reached the pier and the last film; but the deflection cannot be so great, because the accumulation is not so great. In fact, the first deflection is in a manner nothing. It is a nascent quantity; but each succeeding film having some room made for it by the deflection produced by the former, will be broader than it, measuring across the current, and will in its turn add a little to the former deflection; yet so, that the ultimate breadth can hardly be much greater than that of the pier, let the deflection be what it may.

All this while we are speaking of a square ended pier; and it is now clear, that the water which lies in a manner stagnated before it, is bounded on the plan by two curve lines, which have their convexity turned towards the axis of the pier, and are of course concave on the outside. If this, therefore, be the most advisable form of the sterlings of piers, it is, in all probability, different from any that have ever yet been constructed. Before, however, going further, we may observe, that the water in the front of the pier is by no means stagnant; passing in the direction of the stream, every film has a greater velocity than the succeeding; it has to supply not only its own waste by the lateral discharge, but that of all the succeeding, or rather, perhaps, its own waste, in passing through all the succeeding stages. At the commencement of the accumulation and deflection, the direction, as well as the velocity, is, in fact, that of the stream at the pier; the velocity in the direction of the stream vanishes, for the whole is deflected.

We conceive, therefore, although with great diffidence, that it is with impropriety, Newton has said, that the motions are the same as if a certain part of the water in front of the pier or obstruction were frozen, and he conceives this part to end in a point. No part of the water which is before the pier is perfectly stagnant, and it can therefore by no means be considered as frozen, neither can that portion of the water be supposed to come to a point; for, if we take, as the quantity of current intercepted by any pier, to the lateral discharge at the shoulder, so the breadth of the pier to a fourth proportional, it is plain that, roundly speaking, we have the distance on each side of the axis, to which this water extends, at that part of the stream where it may be supposed to be confounded with the general current; and this breadth must be something, since the discharge is something.

Giving up then the idea of making a sterling, or point to our pier, which shall be the same as the water that is supposed to stagnate before it, we think the best thing that can be done is to offer some maxims of construction, which, though they do not constitute a complete rule for the perfect formation of sterlings, will yet serve to improve the practice of the bridge builder, and preserve him from falling into gross and dangerous errors.

It is evident that all abrupt angles at the junction of the sterling with the pier are to be avoided: this part should be neatly and regularly rounded away, so as to prevent the gyration above alluded to, by giving the figure of the incipient part of the curve to the shoulder of the pier. Neither do we approve of the parallelism of the sides of the pier. A small convexity

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might be given them with much advantage, and without adding to the trouble of erection.

It were perhaps to be wished, that in the horizontal section of the curved part of the sterling, it should have a contrary flexure, so as to make the point of it, by being as sharp as possible, turn aside the waters with the greater ease; but this is attended with a manifest disadvantage. The point will then be liable to damage, and the most trivial variation in the thread of the stream, would produce in an increased degree all those gyrations we wanted to avoid; such points too, in navigable rivers, would be fatal to loaded craft. But while we do not attempt to give this acuteness to the pier in the horizontal section, we may acquire it with great facility in the longitudinal or vertical section. For that purpose, the lower courses should be made gradually to project before the upper, and if the formation of the pier admits of it, they may also be made to project on the sides; but care should be taken in so doing to attend to the rules we have formerly given for its stability, and not uselessly to increase the mass of the pier. As we descend, however, the courses of the sterling should become more acute, and project further up the stream, and thus the pier may be supposed ultimately to end in a mere point. In short, the figure of a pier, or sterling of this kind, will have a considerable resemblance to the sock of a plough,—an instrument which, in its application, has a considerable analogy with the sterling. It may be asked, whether these projecting courses should be left by the mason in steps, or trimmed away to a regular curve surface? We conceive, that there are good reasons for choosing to leave them in steps. For, independent of the saving of labour; when the current has any obliquity to the direction of the pier, it will flow over the acute point of the sterling, and being reflected by these steps, will be in a great measure prevented from injuring the bottom. The safety, however, of craft would seem to make it proper to round away the fore corners of the courses.

As to the point of the pier down the stream, its figure must, for the sake of uniformity, be assimilated to the other. It were well if we could in this case apply the contrary flexure above mentioned. The same difficulties are not to be dreaded; and although it may not be easy or agreeable to form it in the horizontal section, yet, by prolonging the tail down the stream further than usual, we will virtually obtain the same thing. The tail of the pier is of less consequence to the stability of a bridge, though it may certainly be contrived so as to facilitate the transmission of the water. Bridges seldom fail on that side; and as they are usually constructed, there is an eddy below the pier, which, although it obstructs the current, and injures the bottom, yet casts up a shoal below each pier that serves to protect the foundations of the building.

Bridges built in the way we have now mentioned, will appear greatly stronger than those of the usual construction; and they will really be so. Independent of their power of preventing the action on the foundation at the shoulder of the pier, which we have shewn in an early part of this section to be the principal cause of the decay of bridges, these sterlings will appear stout, curved buttresses, or as it were knees, to support the lofty side-walls; and by expanding the lower courses of the arch, advantage may be taken of the increased base, to cast the vault into a kind of groin, and thus give a greater degree of transverse strength to the whole structure.

This idea of extending the lower courses of the pier, and breaking, as it were, by degrees, the force of the current, is not new, and we do not give it as such. It may be seen with various degrees of perfection in many ancient and modern structures, particularly in the celebrated Pont St Esprit over the Rhone, which probably owes in a great measure its endurance to that expedient. But we wish merely to bring back to the builder, a principle which, in modern times, seems too often to have been lost sight of, and which was, no doubt, originally the result of a successful experience.

When necessity obliges us to form a bridge at a considerable obliquity to the current of a river, a danger is thereby incurred of producing a gyration on the *lee-bow* of the piers, which will be attended with all the evil consequences we have already explained. The obstruction to the current may be presumed to vary with the cosine of the angle of obliquity, and consequently the additional head must be as the versed sine of that angle. But if the sides of the river be parallel straight lines, the water-way under the bridge will just increase as the secant of the angle of obliquity, or inversely as the cosine. This will just counterbalance the obstruction caused by deflecting the current, leaving only the reaction of the bank, and the *weather-side* of each pier against the stream, to produce the deflection. There will be an accumulation on the one side of each arch therefore, and a depression on the other; while a strong gyration will take place on one of the shoulders of each pier, and which is likely to be attended with much danger. The water-way of the arch too is likely to be much contracted by this cause. All these appearances frequently occur, although the bridge appears to pass directly across the stream; because in such a case the bridge has been designed for the low waters, whereas the stream, when in flood, may have a very different direction. The course of the river therefore, above the bridge, should be carefully attended to, especially when the waters are high, and either corrected, or the position of the bridge adapted to it.

The effect of the gyration at the shoulder of the piers is curious; and, as it is one of the chief causes of their destruction, it is well deserving of attention. The beds of all rivers are porous, and will therefore be glutted with water; which again is everywhere pressed by the whole depth in the river: but at the shoulder of the pier there is a void, so that the bottom at that spot will not have the same vertical pressure that there is every where round it. Water will therefore rise out of the bottom at that place, like a spring or fountain, and so much the more forcibly as the void is deeper. Or, if prevented from issuing, it will exert a strong pressure upwards, upon whatever forms the bottom of the void. Now, this void being sometimes even four or five feet deep, we need not be in the least surprised, that not only gravel and shiver, but even large stones, are lifted in it, and shoved away by the vertical motion.

For these, and other reasons, it is difficult to ascertain the exact amount of the obstruction caused by obliquity. Like every other department of our inquiry connected with hydraulic principles, experiments are yet wanting to assist us in making this a subject of calculation.

Instead, therefore, of occupying the reader's time with a mathematical discussion, from which, at present, little benefit can be derived, we conceived it better to offer a few practical remarks on the methods by which the chief difficulties of such a case may be obviated.

With this view we will venture to recommend, that whatever the position of the bridge may be with respect to the stream, the lengthway of the piers and abutments should coincide with the direction of the current as nearly as may be. A considerable deviation is perfectly practicable. We have formerly shewn, that the position of the joints of the arch may be varied, perhaps 30° from that of equilibration, before any slide is thereby produced among the archstones: we surely have the same liberty here, and this even when the coursing joints are horizontal.

This advantage of friction may be even improved by dowelling or other means, if thought beneficial. But if the coursing-joints, instead of being made horizontal, be formed at right-angles to the side of the bridge, we have the very same advantages that would be obtained were the bridge perfectly direct.

Did the subject admit of it, we would here give the theory of those arches which are not straight on the ground-plan, as the arched top of a bow-window, and the like, some of which afford pretty examples of the application of the principles of equilibration, and all of which, by means of the gravity, friction, or cohesion of their parts, admit to a certain extent of being steadily and solidly constructed. But we shall, at another opportunity, take up this subject, and, in the meantime, we hasten to other matters more intimately connected with our present inquiries.

The centres or framings of carpentry, on which the arches are built, are, in many cases, objects of great anxiety to the builder: they form one of the most beautiful applications of the science of CARPENTRY. But as the principles upon which the more difficult kinds are designed will not be clearly understood, without entering into more detail than is consistent with our present subject, we shall only offer in this article some of the most approved designs, and refer the reader for their explanation and discussion of their comparative merits until we come to treat of CARPENTRY.

Theory.

To the same place we shall also refer the subject of wooden and iron bridges, which intimately depend on the same science; their statical equilibrium admitting of the introduction of a principle essentially different from those employed in erections of stone.

The side-walls and wing-walls of bridges constitute a part not the least important of our subject. They have, especially the latter, to resist the pressure of a mass of earth behind them, forming the roadway up to the haunches of the bridge. Little has been written upon this subject in our language, and that little has been of no practical benefit. Muller and some others give us a few theorems respecting the thickness of the revetements in fortifications. Some of our elementary writers inquire a little into the same subject, as one case of the application of the doctrine of the centre of gravity. Their results, in almost every case, give a much greater thickness for walls of this kind, than is ever found necessary in practice. There can be no doubt that some principle must be overlooked in these investigations, which has a material effect in their application. We cannot say that the inquiries of Belidor, reckoned one of the first of scientific engineers, have been more successful. In another part of this work we shall offer a theory of retaining walls, in general founded upon principles that are perhaps new, and that has been confirmed by the results of experiment. This theory has been found to agree with the ideas of practical men. It is capable of application to all cases of the kind, and it comprehends them all. But in this place it would be embracing too large a field to bring it forward. (A. N.)

PART II. PRACTICE OF BRIDGE BUILDING.

Practice of Bridge Building.

WITH regard to the practice of bridge building, the chief objects may be arranged as follows:

SECT. I.

1. The situation.
2. The design.
3. The materials.

SECT. II.

1. The foundations.
2. The Piers and abutments.
3. The Centres.
4. The Arches.
5. The Spandrels and wings.
6. The Parapets.
7. The Roadway.

SECT. I.

On the Situation, Design, and Materials.

On the situation of bridges.

1. The situation is generally determined by local circumstances, in a town by streets, and in the country by the roads adjacent. If the bridge is of a great size, or the foundations difficult, it is frequently advisable to choose the most favourable situation for the bridge, even at the expence of changing the approaches. It is absolutely necessary that the access

Practice.

be commodious, but where practicable, from the approaches being in a curve, the general outlines of a bridge are seen to most advantage. The situation should be chosen where the river runs in a straight course for a considerable way above it, and where the channel rather contracts at some little distance below. The direction of the bridge should form a right angle with that of the river above it. Rock should, if possible, be obtained for the foundations of the abutments and piers; next to rock hard clay, or clay mixed with gravel, or otherwise firm gravel; but loose gravel, mud, or quicksands, are to be avoided as much as possible.

Designs for bridges.

2. When the situation has been determined, a map or plan should be made of the channel of the river and adjacent banks, also of the streets or roads which are to be connected with each end of the bridge. There should likewise be a section shewing the breadth of the bed of the river, and the form of the banks on each side. Upon this section should be marked the lines of high and low water, to be determined by the marks of the greatest floods, and the best information which can be procured from the oldest inhabitants, and most observing people in the neighbourhood. The consistence of the bed should also be ascertained, by boring with properly constructed augers, especially in the scite of the abutments, piers, and wing walls. There should likewise be a longitudinal section, shewing the declivity of the bed of the river, for at least 200 yards above and below the proposed situation.

When these steps have been taken, and the nature of the materials ascertained, the engineer has obtained sufficient data to enable him to make a suitable design. We shall at present confine ourselves to bridges constructed with stone.

The leading objects in forming a design are,

1st, The passage for the water under the bridge.

2d, The making a perfect roadway over it: And,

3d, The decorations.

1. The number and dimensions of the arches must depend on the breadth of the river, the nature of the foundations, the height of the banks, and the quality of the materials to be used. If the foundations are good, the banks high, the stone hard, and to be procured of proper dimensions, large arches will be found advisable; if the reverse is the case, the size of the arches must be diminished, and their number increased; if more arches than one are required, their number should be odd, in order that there may be an arch in the middle of the river: the middle arch should be the largest, and those on each side should diminish, so that their springing remaining the same, their tops may form a declivity of about 1 in 24. When piers are placed in a river, the breadth between the abutments should be made greater than the natural breadth of the channel at that place, by about double the thickness of all the piers. Where the bed of the river is soft or loose, the increased width must be considerably more. In proportioning the thickness of the piers to the span of the arches, great latitude has been taken, as will appear from the following statement:

	Breadth of piers.	Span of arches.		Engineers.
Roman.	5	33	in the bridge at Rimini.	Unknown.
	11	25	............do.........Vicenza.	
	38	110	............do.........Alcantara.	
Middle ages.	32	115	............do.........St Esprit.	Brothers of the Bridge.
	44	96	............do.........Lyons.	
More modern times.	14	72	............do.........Port Royal.	Mansard.
	19	106	............do.........Orleans.	Hupeau.
	14	128	............do.........Neuilly.	Perronet
	17	76	............do.........Westminster.	Labelye.
	20	100	............do.........Blackfriars.	Mylne.
At present.	18	77	............do.........Perth.	Smeaton.
	14	90	............do.........Dunkeld.	Telford.
	12	72	............do.........Kelso.	Rennie.
	8	65	............do.........Conon.	Telford.
	8	60	............do.........Bewdley.	Telford.

From this statement it will be perceived, that the proportion has been varied from nearly one half to one ninth part of the span. As this important object has been discussed at length, when treating of the principles, it is only necessary here to observe, that the thickness of the piers, besides the span and shape of the arch, is affected by its rise, and in no inconsiderable degree by their own altitude, and the quality of the stone of which they are constructed; it is desirable, in order to lessen the obstruction to the water-way, to make the piers as thin as prudence will admit. The shape of the piers and arches should also be calculated, to form as perfect a water-way as possible; and on this account, all recesses and side projections, within reach of the water, should be avoided, and the connections of the abutments with the banks should be formed on the same principles.

2. If the bridge consists only of one small arch, and there is little intercourse, the road-way may be narrow and without footpaths; if the bridge is long, and there is much intercourse, the breadth must be increased, and have proper footpaths. Since wheel carriages have been in general use, few bridges, however small or remote from towns, have been made less than fifteen feet in breadth over the parapets; they are more generally made from 18 to 20 feet, in

near to considerable towns, from 26 to 30; and in or near large cities, they are made from 30 to 50 feet. The roadway should have a declivity from the middle of the length each way towards and beyond the abutments, of about 1 in 24; and the roadway, as well as the footpaths and parapets, should, near their extremities, diverge, to suit the approaches, whether one or more, at each end of the bridge.

3. The decorations should be varied, according to the situation and accompanyments. In the country, the utmost simplicity, consistent with distinguishing the essential parts, should be preserved; and even in the most splendid cities, or adjacent to palaces, all decorations should be kept perfectly subservient to, and in unison with, the essential parts: the neglect of this is a frequent error in designing bridges. Columns and entablatures, though proper in a Grecian temple, are ill suited to an edifice, where forms unknown to the Greeks are the leading features. As columns can only be placed over the piers and abutments, the entablature, intended to represent beams of timber, cannot be supposed to be wholly upheld by supports placed at such great distances from each other. And the introduction of columns, in place of carrying up the piers, deprives the superstructure of powerful buttresses in situations where they would prove very beneficial. The affectation of preserving the entablature upon a perfect level, has led to making the roadway along the bridge also level, which is nothing less than constructing, at a vast expense, a piece of road more imperfect than what is formed by the common labourer in the open country; and besides, this mode of construction gives an appearance of feebleness to the outlines of the bridge. This false taste was introduced by some of the French engineers, and has of late been, in some instances, copied in Britain. It cannot be too early reprobated, because bridges, when substantially constructed, remain for many ages, and are not easily altered.

In making out the design, the engineer should furnish a plan, shewing the form and dimensions of the foundations of the piers, abutments, wing walls, and wharf walls connected with the bridge; an elevation shewing the general facade; also vertical, longitudinal, and cross sections, shewing the construction of the interior parts. In large bridges, there should be a plan or horizontal section taken at about one third way up the rise of the arches, in order to shew the mode of filling up the spandrels. There should likewise be a plan of the roadway, footpaths, and parapets; besides separate drawings of all those parts which cannot be made sufficiently distinct in the general drawings. A specification should likewise be added, describing in words, the quality and dimensions of every part of the work, and the form and manner of its construction.

3. MATERIALS.

The materials consist of timber and iron for piles, cofferdams, caissons, scaffolding, and centres; of stone, lime, and sand for the masonry; also gravel for embanking at the ends, and forming the roadway over the bridge.

Of timber, oak is the most generally useful, and where exposed to be alternately wet and dry, is most durable; and next to it are pitch, pine, and fir grown from the seed. Under low water, elm is very suitable; it does not easily split, and is very durable: indeed, in this latter situation any timber is sufficiently durable. For gangways, scaffolding, and centers, sound fir timber of natural growth is the fittest; it should be free of knots and sap. In ties, bolts, and nails, malleable iron, made from wood charcoal, should be used. For receiving thrusts, forming supports, or dowelling stones, cast iron is the most proper.

With regard to stones for the piers, abutments, arch-stones, and parapets, no pains should be spared to procure the best which can be obtained at a reasonable expense. They should be of a quality not to be decomposed by the operations of the atmosphere, and they should not be intersected by cross seams. Where the quarry produces them with flat beds, much labour is saved; but when they are laminated, great care must be taken to have them laid on their natural beds. Their dimensions must, of course, be regulated by the magnitude of the work in which they are to be employed. If new quarries are to be opened, experienced workmen should carefully examine their quality; and specimens of the stone should be exposed for at least one winter and summer, in situations similar to that where they are to be used: experiments should also be made to prove their consistence. For the spandrels, wing walls, and backing, inferior stones may answer; but they should be such as can be laid with proper bond, and in regular courses. Those used on the external faces must be fit to withstand the effects of the weather: they should correspond with those of the piers and arches as to colour; and if regularly squared, should be brought from the same quarry, though they may be of smaller dimensions.

In procuring lime for mortar, it is of great importance that it will set or indurate under water; and where immediately exposed to agitated water, the outer edge of the joints should be laid with the British cement, discovered by Mr Parker, which in a few minutes becomes sufficiently hard. Where these cannot be procured, recourse must be had to substitutes: Burnt and pounded iron stone, scales from an iron forge, hard burnt tiles ground and mixed with quick lime, all become hard under water, and in damp situations. In all cases, clean, sharp, or angular sand, is a necessary ingredient; and in rubble work it is better for being very coarse, or approximating to clean small gravel. In making mortar, we have known great advantage derived from using water which contained a solution of iron, and was of a dark reddish colour, approaching to black, which is frequently found adjacent to peat mosses. The lime should be used when fresh slacked, and be well beaten, or made with a machine called a mortar mill.

In using sand, Vitruvius very judiciously makes a distinction between sea or river, and pit sand; of the former he allows two, and three of the latter, to one of lime in powder. Dr Higgins, who made many experiments, and published a treatise upon calcareous cements, recommends (by weight) one of lime to eight of sand. Loriot, in describing what he conceives the secret of the ancients, mixes a portion of unslacked lime ground to a powder, with the mortar which has previously been made up in heaps in the common way. In the specification for the Pont Royal des Thuilleries, by Mansard, and which seems to have served as a model in France, it is provided, that all the mortar of lime and cement, for the work under water, shall be composed of five parts, three of which shall be of good cement of tile, not bricks, and two of lime of Melun, well ground, or pounded together. For the common mortar, two of lime and three of sand. The Sieur Gabriel directs the same preparations for the bridge of Blois. Perronet, for the bridge of Neuilly, directs that the cement mortar shall be equal quantities of ground tiles from St Germain, or St Cloud, and lime; observing that this, on account of the quality of the lime, exceeds by $\frac{1}{10}$ the usual quantity employed in this sort of mortar. Of the other, or white mortar, he directs one third of slacked lime, and two thirds of sand. In the account of building the Eddystone light-house, Mr Smeaton gives a chapter upon water cements, from which we shall extract a few particulars; and earnestly recommend those who wish to be fully informed on this point, to peruse with attention the whole of that valuable chapter.

Mr Smeaton found, in many parts of England, limestone which produced lime, that when made into mortar grew hard under water. The best kind was at Aberthaw, in the Welsh side of the Bristol channel. He found the stone of Watchet, a small sea port in Somersetshire, had long been used in water works: it did not suit the purposes of agriculture. He traced the same sort of stone through the counties of Monmouth, Gloucester, Worcester, and Leicester, and thence by the vale of Belvoir into Nottingham, and Lincolnhire, at a place called Long Benington: he found it also in the counties of Dorset, Hants, Sussex, and Surrey. It has also long been procured in Lancashire, under the name of Sutten lime.

After mentioning the shape, appearance, and qualities of the sundry stones, he concludes, that as this sort of limestone is found, blue, grey, yellow, and white, also in thin strata and lumpish masses, sometimes very hard and sometimes comparatively soft; that its fitness does not depend upon those appearances and qualities, neither does it upon the matrix in which it is formed. But he found, that when burnt, all the water limes fell into a buff-coloured tinge, and all contained a considerable portion of clay.

He found once a reddish coarse deep brown sand stone, of a somewhat tender nature, which when burnt, pounded and sifted, and mixed with slacked lime, and made into a ball, became very hard.

He states, that limestone in general loses about $\frac{4}{9}$ of its weight by burning; that slacked lime produces double the measure of the burnt stone or shells; that when made into a paste, it occupies but half the space of the powder; that two measures of slacked lime made into a paste, and mixed with one measure of terras or puzzolano, makes about $1\frac{4}{10}$ of mortar.—The following Table is the result of his observations, experiments, and practice.

No.	Water lime with puzzolano.	Lime powder.	Puzzolano.	Common sand.	No. of cubic feet.
		Bushels.	Bushels.	Bushels.	
1	Eddystone mortar	2	2	—	2.32
2	Stone mortar	2	1	1	2.68
3	Do 2d sort	2	1	2	3.57
4	Face mortar	2	1	3	4.67
5	Do 2d sort	2	0½	3	4.17
6	Backing mortar	2	0	—	—
	Water lime with minion.		Minion.		
7	Face mortar	2	2	1	3.22
8	Do Calder composition	2	1	2	3.57
9	Backing mortar	2	0½	3	4.17
10	Do 2d sort	2	0¼	3	4.04
	Common lime with terras.		Terras.		
11	Terras mortar	2	1	—	1.67
12	increased	2	2	1	2.50
13	further	2	1	2	3.45
14	still further	2	1	3	4.35
15	Terras backing mortar	2	0½	3	3.50
16	2d sort	2	0¼	3	3.37
	Common lime with minion.		Minion.		
17	Ordinary face mortar	2	2	2	2.75
18	2d sort	2	1	3	4.34
19	Ordinary backing mortar	2	0½	3	4.05
20	2d sort	2	0¼	3	3.92

He observes upon this Table, that these materials are all supposed in the dry state: That the lime and puzzolano must be thrown into the measure or vessel with the same degree of force.

He denominates minion to be what falls from the outside of the lumps of iron stone.

He allows the day's work of a man for beating every bushel of terras; that is, two bushels of lime powder and one bushel of terras. The bushel is the Winchester level with the border. He allows iron forge scales, when sifted clean from dirt and clay, as equal to as much terras or puzzolano.

His mode of working is "to mix the due proportion of the lime and the puzzolano, the terras or the minion, together in dry powder; and it will also be well to have at least one third of the sand (either fine or coarse), likewise dry; put as much water to the lime as, with a shovel or beater, you can bring it to a paste of a moderate consistence, but rather more wet than to be properly used as mortar in that state; then by degrees beat in the moist sand, and afterwards the dry, bringing it to a consistence by beating after every addition. The dry sand is intended to dry up the superfluous moisture, so as to render the mortar fit for immediate use; and if this has not brought it to a sufficient stiffness, let it lie till it is inclined to set, and then beat it up to a due consistence; or if immediately wanted, beat in a little dry lime powder, always however faithfully remembering not to terminate beating till the mass has got all the toughness that you find it will acquire by beating."

In Scotland, most of the limes harden under water: that from Lord Elgin's great lime works on the river Forth, from Portsoy on the Murray coast, and from the island of Lismore, in the Linnhe loch on the west coast: the last is the best, it slacks into a buff colour. Mr Telford discovered its qualities when searching for materials for the western district of the Caledonian canal, by observing in a park wall, belonging to the Marquis of Tweeddale, built against spongy ground, and where water oozed through, that the mortar was hardest, and threw out stalactites; also that it was quite perfect on the top of the wall, where worked among small stones, without coping of any sort.

Sect. II.

On the Foundations, Piers, Abutments, Centres, Arches, Spandrels, Parapets, and Roadway.

The situation, general design, and materials having been determined, the next step is to prepare the foundations; and if the water is shallow and upon rock, or other matter sufficiently firm, the operations are very simple; nothing being necessary but to turn the water, by means of a mound of clay, from the space to be occupied by the abutments and piers successively, to clear and level the ground, and to proceed with the masonry: But when the water is deep, and the foundation soft mud or sand, or loose gravel, the difficulties frequently require all the art of the most experienced engineers. Even when the foundation is clay or rock, if the water is deep, and the currents from tides or land floods considerable, few operations require more talents or attention.

Various are the schemes which have been resorted to, in order to avoid or lessen the difficulties attending the laying the foundations of bridges. 1. A situation has been chosen in the bend of the river, to which, after the bridge was constructed, a new river course has been cut. 2. A side channel has been formed, by which the whole, or greatest part of the water, has been drawn off during the time the foundations were put in the old river course; and the water, so drawn off, was afterwards returned to its original channel. 3. Mill weirs on the river, below the proposed situation, have had their sluices drawn, or have been partly removed for a time. 4. And when there happened to be no weirs, the bed of the river has been deepened, for a considerable distance, in order to lower the water at the intended scite.

When the depth of the water has been reduced as much as possible, it remains to be determined in what manner to proceed. Anciently, (as in the case of London bridge,) in deep rivers, the foundations of the piers were made by merely driving piles all over the space, so that their heads stood level with low water; the spaces between them were filled with loose stones, and the masonry begun upon the top of them; but the piers were immense masses, and required to be protected by sterlings; which, leaving a very confined water-way, created a head and velocity which tore away the bed of the river immediately below the piers. This mode having been long disused, we shall proceed to consider,

1st, Batterdeaux, or Cofferdams; and,
2dly, Caissons.

Both methods have been employed with success: The greatest of the modern bridges in France, that is to say, Orleans and Neuilly, were constructed by means of the former; whereas, in England, the bridges at Westminster and Blackfriars were accomplished by the latter mode.

Of Cofferdams.

Of Cofferdams.

We shall first describe the measures pursued both in France and Britain, in working by means of batterdeaux or cofferdams.

The forms of these are varied according to local circumstances, and the ingenuity of the persons who have the direction of the work.

1. By driving two rows of vertical piles and plank piles, and filling the space between them with clay.
2. By driving main piles, and working with strong planking, laid in a horizontal position.
3. By driving one row of guaging piles, and filling the spaces between them with pile planks driven vertically.

The most eminent French bridge engineers, viz. Mansard, Sieur Gabriel, Gautier, Hupeau and Perronet, in constructing their greatest bridges with cofferdams, directed piles, from nine to ten inches diameter, to be placed from three to four feet from centre to centre, and driven from three to six feet into the bed of the river, (if composed of mud, clay, or gravel,) and to rise (in their rivers) six feet above low water mark. Their pile planks were nine to twelve inches broad, and four inches thick; one frame contained 16 of these pile planks, which were driven at one time; these frames were placed along, and embraced three of the main or guide piles, and were composed of two uprights, of the same thickness as the pile planks, each sharpened at one end; these uprights were fastened together by two horizontal pieces one below, and the other above, and separated by the thickness of the uprights; these frames being fixed, served to guide the pile planks; the grooves were two to three inches wide, and two inches deep; the shape of the groove was sometimes rectangular, and sometimes triangular; and sometimes a groove was made in each plank, and a slip or tongue driven down. The distance between these two rows of piles, to receive the clay, &c. they made in still water to be equal to the depth of the water to be sustained; in running water, once and a half that height is recommended: The two rows were kept together by two tiers of ties, six inches square.

At Orleans, the two rows were driven ten feet apart from centre to centre; the piles were from 18 to 24 feet long, and nine to ten inches diameter without the bark; they were shod with iron, each shoe weighed 20lbs.: The pile planks were 18 to 21 feet long, nine to ten inches broad, and four inches thick; each shoe weighed 8lbs. The rams for driving the piles were about 1200lbs.; those for the pile planks 500 to 600lbs. At Neuilly, the piles were 22 to 24 feet long, nine to ten inches diameter, including the bark; they were driven six feet into the earth. The pile planks were 21 feet long, and four inches thick, driven six feet, by rams of from 600 to 900lbs.

When these two rows of piles and pile-planks were driven and secured by ties six inches square, the space between them was cleared of stones and gravel down to the firm ground, by rakes and spoons, and then filled up with clay or earth, which excluded water. This being accomplished, hydraulic machines were established to lift the water from the inside of the cofferdam; these were pumps worked by men or horses. At Neuilly, water-wheels upon the Seine worked bucket-wheels, which threw up the water from 10 to 12 feet. After the water was pumped out, and the stones and gravel removed, Gautier, after having levelled the ground, laid down a grating, consisting of timbers, of 10 to 15 inches diameter, with openings of two feet, to two feet and a half square, and drove two piles in each opening. Hupeau and Perronet, after clearing the space within the cofferdam, drove piles at the distance of three to four feet from centre to centre; these piles are from 12 to 20 feet in length, and 12 inches mean diameter without the bark; their shoes weighed, including branches and nails, from 13 to 25lbs. They were driven with rams of 1000, 1181, 1384, and 1981lbs. until they did not sink two lines by the last sixteen strokes, after a continuation of thirty strokes; or until they did not sink two lines with twenty-five strokes, and received ten strokes afterwards. They began by driving the piles next the centre of the space, and finished with the outer rows. After the piles were driven, and, with the exception of the tenons, cut off nearly level with the ground, caps were morticed upon them, and upon these, along each row of piles, beams, 12 inches by 8, were fixed by pins or bolts; the spaces in this grating were cleared out for 18 inches in depth, and filled up with rubble masonry, laid in lime mortar, which grew hard under water; this was brought up level with the top of the grating; thin planking, four inches in thickness, was laid over the whole space, and pinned or spiked down to the grating; this platform extended seven feet beyond the face of the masonry of the shaft of the piers and face of the abutments. Upon this platform, the first course of the masonry was laid.

If the ground proved firm and water-tight, this process, although laborious, was regular and plain; but as the French engineers inclosed very large spaces around their masonry, great inconvenience frequently arose from imperfections in so extended a cofferdam, and sometimes from springs supplied from higher grounds rising within the enclosed space. From circumstances of this nature, in one of the abutments at Orleans, frequent interruptions took place; they were forced to subdivide the enclosed space; and, at last, after having discovered the precise situation of the springs, to raise them by tubes, so as to discharge the water made by them above the level of the water of the river. It is, therefore, advisable, in order to avoid expence in the construction and after risk, to enclose the smallest space possible. Round the edge of the platform, they sometimes drove a row of pile planking, or laid a bed of dry rubble stones, about six feet wide, and about two to three feet deep. For Neuilly cofferdam, see Plate XCV.

Plate XCV.

The foundations of many bridges in England have been laid by means of cofferdams, so nearly similar to those which have just been described, that noticing them here would lead us into repetition: We shall therefore proceed to the second mode.

2. In constructing a bridge upon the river Severn, at Bewdley, in Worcestershire, designed by Mr Telford, and executed under his direction, Mr John Simpson of Shrewsbury, (who built the bridge by contract,) constructed a cofferdam, which answered the purpose perfectly well. Here the low water was five feet in depth, for 7 feet more there was gravel and rubbish, and under that a sand stone rock. The floods rose about 10 feet. In Plate XCVI., Figs. 1, 2, 3, the plan, section, and side view, will shew distinctly the manner in which the cofferdam was constructed. The chief peculiarity is, that the sides and ends were formed on the shore, by laying the planking horizontally along upright piles, and dowelling them together; they were then floated off, fixed against main piles previously driven, and there secured by cross braces. About five feet without these a similar inclosure was made, and the two secured together by iron bars in the middle of the height, and wooden braces at the top. The space between them was filled with clay in the usual way. Before the space for the foundation of the masonry could be wholly cleared down to the rock, it was found necessary to put down some small piles along the edge of the gravel, next to the outer edge of the stone work.

Plate XCVI. Fig. 1 3.

In the same Plate, Figs. 4, 5 represent the plan and section of a cofferdam, used in under building one of the piers, and also the eastern abutment of Pul-

Figs. 4

teney bridge, in the city of Bath. The operations here were rendered peculiarly difficult, by several previous ineffectual attempts; they were at last successfully accomplished by Messrs Simpson and Cargill, employed for that purpose by Mr Telford. This work much exceeded in difficulty those in Languedoc, so minutely described by M. Gautier, the French engineer, as very extraordinary efforts of art.

3. A still simpler mode of constructing cofferdams has been practised in Britain: that is, by driving guaging piles, about 12 inches square, at the distance of about 10 feet from each other, and about 5 feet from the edge of the intended platform. They are driven from 5 to 7 feet into the bed of the river, so as to be about 3 or 4 feet below the level of the platform, and rise about 8 feet above low water. They are grooved to receive the pile planks, and a leading beam, 6 inches by 9 inches, is fixed about a foot below their top on the inside. These beams are notched on the guaging piles, so that their outer edge is in a line with the inside of the groove for the pile planks. The whole of the pile planks, which fill a space between the guaging piles, are entered together, and the middle pile has a wedge-form narrowest at the bottom. The pile planks receive a few strokes alternately, so as all to be driven nearly together, while the middle one wedges the whole, and makes the joints water tight. They are driven about three feet below the platform, and the whole properly braced. The water being pumped out, and the ground cleared, piles are driven about two feet and a half distant from centre to centre, over the whole foundation; those near the middle being driven 7 feet 6 inches below the platform, and 8 inches diameter; those next the outside 9 feet long, and 10 inches diameter. Immediately under the outer edge of the platform, grooved guaging piles are driven about nine feet distant from centre to centre, and nine feet in depth. Nearly in the same range with these, common round piles are also driven. Upon the latter, a leading beam, 12 by 8 inches, is fixed, which also embraces the guaging piles, and guides the pile planks which were driven around the platform. The bearing piles may be considered as sufficiently driven, when by 30 blows of a proper ram they are not driven one inch, and 40 blows for driving the sheeting piles the same distance. See Plate XCVII. Fig. 1. Along the top of each second row of piles, under the body of the pier, a beam, 12 by 6 inches, is laid, reaching quite across, and dovetailed into the beams which surround the platform. The spaces between the beams are filled up with masonry. Upon this platform the regular courses of masonry are laid.

In whatever manner the cofferdams are constructed, there should be means provided to discharge the water near the level of low water of the river, instead of raising it always over the top of the cofferdam; and there should also be a sluice near the level of the bed of the river, to fill the cofferdam in case of any defect appearing in the dam, or any risk of a flood rushing in too hastily.

OF CAISSONS.

With regard to laying foundations by means of caissons, this mode was first practised in England by that able engineer Mr Labelye, at Westminster bridge. In the sequel of a brief report relative to this work, (edition 1751,) he announced an intention of publishing a larger report, with plans and designs, calculations and details. This, however, never appeared; but most of the essential materials have been preserved by Mr Thomas Gayfere, a venerable old gentleman, aged 90, now living in Abingdon-street, Westminster. He was senior apprentice to Mr Jelf, the mason first employed on Westminster bridge, and was specially appointed to make working plans and models, and to be attendant on Mr Labelye's own directions; and when Mr Tufnell succeeded Mr Jelf, Mr Gayfere was continued in the same capacity till the bridge was finished. From his manuscript narrative and drawings, which he has allowed to be in part copied for this work, will be seen the injustice to which engineers subject themselves, by not publishing their designs,—most of Labelye's inventions having been copied, without acknowledgment, by others, who have since constructed large bridges, and to whom they have rendered similar operations a comparatively easy task.

By this valuable manuscript we are informed, that at the situation fixed for the bridge, in the ebb channel on the Surrey side, there was 6 feet at low water; in the flood channel on the Westminster side, 5 feet 9 inches, and on a shoal between them, 4 feet; also that the rise of tides at extra springs, with land freshes, was 15 feet; neaps 7 feet; and at a mean tide 10 or 11 feet;—that the velocity of the surface was something greater with the tide of flood than that of ebb;—that with the former it was about 3 feet per second, with the latter 2½ feet;—and that the piers were laid about 5 feet below the bed of the river. About the middle, and at 5 feet under the bed of the river, the gravel is 14 feet deep: this continued from the Westminster side ¼ the width of the river. The other fourth part, next the Surrey shore, is a loose sand and mud.

They commenced the operations by driving fender piles to keep off the barges. These were 34 feet long, 13 or 14 inches square, and driven 13 or 14 feet into the bed of the river. They were placed 30 feet from the pier, and 7 feet asunder, and were connected by floating beams. For the first large pier there were 34 of these piles, for the others 26. They were driven by an engine constructed by M. Vauloue, a watchmaker. The weight of the ram was 1700lbs. After the engine had worked for some time, it was found, that by three horses walking at an ordinary pace, when the ram was raised only 8 or 10 feet, 5 strokes were made in two minutes.

The foundation was formed, by scooping the mud in the usual way of raising ballast in the Thames at that time. When they came to the gravel, it was raked level. The guage for proving the foundations, was a stone 15 inches square, and three inches thick, fixed to a graduated rod 18 feet in length. The rod was painted red, and the figures white.

In order to prevent the current from washing the sand into the pit, short grooved piles were driven before the two ends and part of the sides, not above 4 feet higher than low water mark, and about 15 feet distant from the caisson. Between these piles, rows of boards were let down into the grooves to the bed of the river.

The length of the caisson from point to point (the shape corresponding with that of the pier,) was 80 feet, the breadth 30 feet, the height, including the bottom, 18 feet. The sides were formed by fir beams laid horizontally upon one another, and pinned with oak trenails. They were framed, and had oaken knees bolted and screwed at all the angles, except the salient angles, where they were secured by iron work, which being unscrewed, permitted the caissons, if necessary, to part in two halves. The sides were planked across the timbers, both inside and outside, with three inch planks; the thickness of the sides was 18 inches at the bottom, and 15 inches at the top. The bottom was also formed with beams, with three inch planking across their under sides, and timbers nine inches thick across their upper side, making the whole two feet in thickness. Upon this bottom, around the outer edge, a strong curbing was fixed, to prevent the first course of stone from pressing against the sides. All the joints, both of the sides and bottom, were caulked and pitched.

The sides were fastened to the bottom by 28 pieces of timber, 8 by 9 inches, fixed on the outside, and 18 within, reaching to and lapping over the tops of the sides. The lower end of those pieces had one side cut dovetailed, to fit a mortice made in the outer curbing of the grating of the bottom, and they were kept in their places by iron wedges. The bottom grating extended 5 feet beyond the face of the upright shaft or dado part of the pier.

The caisson being launched and fixed exactly over the place with cables fastened to the adjacent piles, the masons laid the first course of stones within it. This done, a sluice made in the side was opened near low water, on which the caisson sunk to the bottom; if it did not set level, the sluice was shut and the water pumped out, so as to make it float, till such time as the foundation was levelled. The masons cramped the first course of stones, and laid a second course; which being likewise cramped, a third course was laid: then the sluice being opened again, proper care was taken that the caisson should sink in its proper place. The stone-work being thus raised to within two feet of the common low-water mark, about two hours before low-water the sluice was shut and the water pumped out by four pumps, eight inches square, each worked by eight men, and a small pump three inches square, worked by two men, so that the masons could lay the next course of stones; which they continued to do till the water was risen so high as to make it unsafe to proceed any farther; then they left the work, and opened the sluice to let in the water. Thus they continued to work night and day at low-water till they had their work some feet higher than low-water mark; after this the sides of the caisson were loosened from the bottom, which made them float, and they were carried ashore to be fixed to another bottom for the next pier. See Plate
Plate XCVIII. XCVIII.

A few years after Westminster bridge was completed, that over the river Thames at Blackfriars was begun, from the plans, and under the direction of Mr Mylne, who followed the example of Mr Labelye, by laying the foundations by means of caissons. The sides, ends, and bottom were constructed in a similar manner to those at Westminster, but the form of the caisson was rectangular, the length was 86 feet, the breadth 33 feet, and the height, including the bottom, was 29 feet. The sides were fastened to the bottom by strong iron straps, six on each side, and three on each end; each of them were about 20 feet in length: on one end a part about 10 feet in height above the bottom was fixed on hinges. At about 16 feet above the bottom, there was a floor to strengthen the sides and ends, and to receive a mill for working a chain-pump. There was another floor level with the top; one end of this was sunk a little to receive the capstan for lifting stone; over this capstan there was an awning to protect the workmen; upon the highest part of this floor was placed a triangle for raising stones, and a windlass for raising mortar. On each side of the caisson were four upright pieces of timber, which formed part of triangles to be connected with barges for lifting the caissons. When the masonry was built up to the level of low water, a barge was laid along each side of the caisson at low water, and fixed to the upright pieces; when the tide rose, the iron straps, and the moveable piece at one end, being disengaged, the barges lifted up the caisson, which, when raised to clear the bed of the river, was floated off. This mode of removing by barges became necessary, from the height of the caisson, and having floors and machinery constructed on them.

Mr Mylne caused piles to be driven into the bed of the river, and cut off level with the surface of the space which had been excavated for the foundations of the piers.

In a river where a caisson of 6 feet in depth only Plate
was required, Mr Smeaton, with his usual ingenui- XCVII.
ty, contrived one of corresponding simplicity: The Fig. 2.
bottom consisted of two thicknesses of three-inch planks laid crossing each other, the sides and points calculated just to clear the masonry of the lowest course a few inches. They were composed of three-inch planks, grooved and tongued, level with the top; and all round the inside of the planking was a frame of timber, nine inches broad by six inches in thickness. At about two feet six inches below this was another frame six inches square; around the outside of the planking, and rather above the level of the bottom, was a third frame nine inches by three. To all of those frames the planking was firmly bolted, the sides were fixed to the bottom by iron rods, which, passing through the inside frames, had each two of them their lower ends entered into an iron socket, which was let into the upper planking of the bottom, and secured by screws passing through both planks. The socket had one side perpendicular and the other dovetailed, and the ends of the rods were made to fit it, their upper ends passed through the upper curbing about nine inches from each other, and were secured by screws and washers on the upper side of the frame. The spreading at the top tended to render their hold in the socket firm, and when

the sides were to be raised it was only necessary to unscrew the nuts. Across the top of the caisson there were seven ties of timber, each 12 inches by 6.

In some cases, in very deep water, where the bed of the river, though soft, is nearly level, or can be made so, a very strong grated frame of timber, much larger than the foundations of the masonry, may be let down by placing great weights around the edges of it, and having piles driven to keep it in its place, a caisson may be sunk upon it. This, when once settled by the weight of the pier, stands as well as if piles were driven under the bottom of the caisson. Sometimes pile-planks should be driven round the frame.

We learn from the work of L. A. Cessart, that the mode of laying foundations in deep water, by means of caissons, was not practised in France till the year 1757, when M. de Voglio and himself (encouraged by Perronet) introduced it with success at the bridge of Saumur, after the manner of Labelye.

Having detailed the different modes which have been practised by eminent engineers upon large rivers, it may be useful to young artists to mention, that in smaller rivers, where the foundations are to be laid on firm gravel, mud, or quicksand, it is frequently necessary to drive a row of dovetailed three-inch pile-planks around the pier or abutment, from five to ten feet in length, according to the nature of the ground, and lay some clay round the outside of them; then to excavate the foundation about two feet below the level of the bed of the river, and lay down sills nine inches by six longitudinally, at the distance of about four feet from each other, filling up the spaces between them with rubble masonry; upon this to lay two thicknesses of three-inch planking crossing each other, and pinned with oak trenails; around the outer edge of these, and immediately without the first course of masonry, to fix a curbing six inches by four, to which, after the masonry has been built up to the level of low water, and the clay removed from them, the pile-planking should be fixed by spike nails, and cut down to nearly that level. If the ground is very soft and loose, it is also necessary to drive piles under the platforms. In some instances, besides the platforms under the piers and abutments, gratings filled with masonry, and covered with planking, have been carried quite across the bed of the river. M. Blondel performed this in the bridge of Xaintes upon the Charante. In a bridge over the Liffy, in Dublin, Mr George Semple carried a solid mass of masonry across the bed of the river, between the piers. Inverted arches have also been made between the piers, and more especially between the abutments, in the case of having one arch only across the stream.

Excavations for the foundations and gratings in deep rivers can now be much more expeditiously performed by the improved dredging machines, worked either by horses or steam-engines.

Having completed the cofferdams and caissons, it is, in large works, an important consideration to have a perfect command of the water which may rise within them. The modes formerly employed were hand-buckets, or pumps worked by men or horses, also water-wheels; but of late, in England, recourse has been had to steam-engines. These can now be suited to any exertion required, and are the most powerful and certain means yet devised. The gangways and scaffolding must be regulated by local circumstances, no general rules being applicable. We shall, therefore, only notice, that the labour in removing large stones, may frequently be much abridged by laying down cast-iron railways; and that much aid is to be derived from the use of properly constructed cranes. The form and properties of these will be explained under their respective heads.

Cofferdam for founding the sea lock at the west entrance of the Caledonian Canal. Plate XCVII. Fig. 3.

To lay the foundations of piers in deep water, upon rock, and in the tideway, being a difficult operation, it becomes of serious importance to explain how it has been performed upon a large scale. We do not recollect of this having been done in a satisfactory manner in any former publication, and therefore trust the following narrative will prove interesting to those who may be connected with similar works. It affords a minute detail of every operation in the construction of a cofferdam upon rock, in deep water, and in the tide-way. It has been practised with perfect success at the western termination of the Caledonian canal, for the tide-lock built there by Messrs Simpson and Wilson, and is equally applicable to the abutments or piers of bridges.

The entrance from the canal into the tide-way having been fixed on the north-west side of a rock which projects into the sea about 100 yards from high-water mark, and which was covered at three-quarters flood, it became necessary to discover in what direction, and at what depth it lay below the silt or mud which composed the beach at that place. By boring with augers, it was found, at the distance of 21 yards from low-water mark at the lowest spring ebbs, that the rock, in the middle of the entrance, was 21 feet below high-water neap-tides, which affording the desired depth, was fixed upon as the extremity of the space to be enclosed by a cofferdam for the sea-lock.

In the spring and summer of 1807, the earthen-bank was carried forward to near the end of the timber work for the coffer-dam. The first leading frame was begun in August, and put together on the beach, near high water-mark, that it might be floated off to its situation. The first leading frame was begun by fishing together end to end, two beams 13 inches square, by pieces 20 feet long, 13 inches broad, and 6 inches thick, laid on opposite sides of the beams across the joints, and fastened by four screw bolts, which passed through the whole. The length of these beams, when joined, was 95 feet. In order to form the sides of the leading frames, from the ends of these last-mentioned beams, two others, each 63 feet in length, were laid with an inclination to each other, that left their inner ends 65 feet apart. They were fastened to the ends of the long beam by half chucking or gaining, and two screw bolts through each corner. There was a beam 38 feet long laid across each angle, and fastened down to the front and side leading beams by screw bolts. At the height of the springs this first leading frame was floated off, and at low water adjusted in its precise situation, and sunk to the bottom by means of a number of large stones being placed upon it. A considerable degree of attention was bestowed in adjusting this first frame, because upon this depended the having the coffer-dam, and, of course, the entrance and wings of the sea-lock, in a proper direction. On the upper side of this leading beam, previous to sinking it, there were mortices cut, three on each side, and three in the front, which were to receive tenons made on the lower end of the standard, which were placed upright therein, and cut off at the level of one foot below high water neap tides, in order to receive the middle leading frame. This last-mentioned frame, after having been made on the shore, in all respects similar to the first, was floated into its place; but, after two or three fruitless attempts to rest it on the top of the upright standards as the tide left it, this mode was abandoned, it being found impracticable, in so strong a tide, to steady such a large frame on such low unconnected points. This led to placing a pile engine upon the deck of a sloop, and driving three piles along the front, and two on each side, all close to the outer side of the lower leading frame. Large brackets were nailed to the inside of these piles, level with the tops of the upright standards. The frame was then floated again into its place, when it rested upon the brackets, and upon the top of the standards, and was screw-bolted to the piles. Upon the second leading frame were also upright standards fixed in mortices, and cut off at the level of high water of a high spring tide. The upper leading frame was floated off and fixed upon the standards. For doing this, advantage was taken of one of the highest spring tides in the beginning of October. This frame was likewise bolted to the piles. A temporary scaffold was made above the top frame, by laying large beams across, and driving piles in the inside of the space to support them. The whole was now loaded with stones. A large pile engine was placed on the scaffold, and a number of piles driven around the outside of these frames, at fifteen and twenty feet apart from each other. They were bolted to the uppermost frame, to keep the whole steady during the winter storms.

In March 1808, the work was recommenced by putting down the main or framing piles, and fixing them in the rock by means of iron-dowels. For this operation there was first constructed a cylinder of three inch fir plank, 22 inches diameter in the inside, and eight feet long. The joints were made perfectly correct, and dowelled together; and it was hooped with flat iron bars. The lower end was shod with a circular iron shoe, fitted on the edge of the timber, to prevent it from being damaged by stones while driven down to the rock. Near the upper end, and on the opposite sides of the cylinder, two strong eyes were fixed by means of strong iron clamps, which embraced the cylinder, and were rivetted to its sides. This was done in order to receive a strong chain to lift up the cylinder, and also for drawing it out of the sand and mud after the pile was fixed. At low water, this cylinder was placed in the situation where the centre of the main pile was to lie. At this spot there were three feet of low water, and eight and a half of silt and gravel upon the top of the rock. The cylinder being lifted by ropes fixed on the top of the pile-engine frame, it was set perpendicularly on the surface of the sand, and close to the inside of the lower leading frame. On the top of it was placed a block of ash timber, two feet high; on the lower end of this six inches were turned, to fill exactly the inside of the cylinder, to prevent the block from shifting, and also to prevent the cylinder from crushing during the driving. This block was strongly hooped with iron, as was also a pile, twelve inches square, that stood on the top of it, and reached as much above the top of the upper scaffold as the cylinder had to sink into the mud. The whole were now lashed, in such a manner as to keep them perpendicular, and, at the same time, allow them to sink. The driving was then commenced with a pile engine 30 feet high, and a ram 1008 lb. At first the cylinder went freely; but, by the time it had sunk three feet and a half, it went so stifly, that it was found advisable to begin emptying the matter out of the inside. For this purpose an instrument, named a sand auger, was made, (See Plate XCVII.) having a quadrant of a circle of the same diameter as the inside of the cylinder. The circular side, and one of the straight sides of this quadrant, for six inches high, were made close, of thin rolled iron rivetted to the ribs, which were fastened to the corners of the quadrant, from which proceeded an upright shaft, the other straight side being open. To the bottom of it four flat teeth, two inches and a half long, were fixed, with an inclination downwards; so that, when the auger turned round, these teeth loosened the sand, and prepared it to enter easily into the body of the auger. To keep it steady while turning, there was fastened to the lower side of that corner of the quadrant which is the centre of the circle, a pivot, six inches long, which passed into the sand, and served as a centre for the auger to turn upon. Immediately above this pivot stood the upright shaft, which for ten feet was of iron, one inch and a half square, and for twelve feet more a piece of ash timber four inches square. Upon this two cross handles were placed, to turn it with; and they were to slide up and down as the auger rose and fell. At five feet below the upper scaffold, where the pile engine stood, a temporary scaffold was erected, on the top of the second leading beam, where four men might stand and turn the auger. In this lower scaffold was a round hole, through which the wooden shaft of the auger passed, and kept it steady. When at work, two complete turns filled it. It was then lifted up above the water, by a purchase from the top of the pile engine, and the sand was cleaned out with a small shovel, by a man who stood in a boat for that purpose. The operations of boring and cleaning out were repeated, until the sand was taken out to the bottom of the cylinder; which was then driven farther down, and a similar operation of sand boring gone through; driving and boring alternately, till the lower part of the cylinder rested upon the rock, and all the sand was taken out, as low as the pivot would allow for the rock. There was then a frame, which fitted the inside of the cylinder, introduced into its upper end, and sunk to the bottom by means of two half hundred weights. Down a square hole in the middle of this frame, was introduced a pipe, four inches square

Pl. XC
Fig.

at the top, and tapered to three inches at the bottom. This was driven down to the rock through the small quantity that the auger could not clear. The sand which was inclosed by the pipe was cleared off the rock by a cylindrical iron tube, three inches in diameter on the outside, and three feet long, which had a valve fixed within two inches of the bottom, and rested on a small ring fastened in the inside of the tube for that purpose. On the top of the tube was a screw, by which it was fastened to a set of boring rods. It was then passed down the inside to the bottom of the square wooden pipe, and, by working it by short and quick strokes, the before-mentioned sand and small gravel worked above the valve by the agitation of the water. The tube was then taken up and emptied of the sand; and this operation was repeated, until the rock within the square tube was perfectly clean. It was found absolutely necessary to clear away this sand, as otherwise it entirely prevented the jumper from turning on the rock.

A jumper was then passed down the square directing-pipe, and worked by a lever on the upper scaffold, until a hole two inches and a half in diameter, and twenty inches deep, was bored into the rock, to receive an iron dowell two inches square. This dowell was fixed in its place, by fastening it into a square socket made in the end of an inch and a half square iron bar by a small cord, to prevent it from falling out of the socket while lowering down the square directing-pipe to the rock. It was driven into the hole in the rock, by striking with a large hammer on the head of the bar. When it had been driven eighteen inches into the hole, the timber was lifted by a sudden jirk, which broke the cord, and left the dowell in its intended situation. The frame and square directing pipe were then lifted out of the cylinder.—The pile, previous to being let down, had two hoops put on its lower end, and a hole cut to receive the end of the iron dowell which stood in the rock. And, from the side of this hole to the inside of the lower hoop, four pieces of iron were driven into the end of the pile, to prevent the timber at the sides of the dowell from giving way, when the lateral pressure came upon the pile. On the four sides, near the lower end of the pile, pieces of timber were nailed, to increase its size to twenty-two inches, this being the inside diameter of the cylinder. By this means the hole was kept in its precise situation, and was formed to pass exactly upon the dowell. It was then set hard to the rock by a stroke of the pile engine. This completed the fixing of one main pile. A strong chain was then fastened to the top of the cylinder, and, after the main pile was wedged down, to prevent it from rising, a strong purchase of ropes and blocks was applied to raise the cylinder out of the sand; but all the power which could be applied was ineffectual. A beam of fifty feet in length was therefore procured for a lever. The fulcrum of this lever was laid on the top of the main pile. The outer end of it was lifted up by ropes and blocks from the mast of a sloop, that was laid along the outside of the dam for this purpose. The chain from the top of the cylinder was now fixed to the inner end of the lever, and six men got on the outer end, and set it in motion. The cylinder at length started; but, before it moved, it took a purchase of nearly fifty tons. After it was worked up a little by the lever, the ropes and blocks were again applied, and lifted the cylinder over the top of the pile. The head of the pile was now forced against the inside of the upper leading frame, and a screw-bolt put through both. The whole apparatus was then shifted to the situation of the next main pile, and similar operations took place, until the whole of the main piles were fixed, excepting in some instances where the sand was shallow, and then the cylinder was lifted without employing this enormous lever.

The main piles having been all properly fixed at the bottom, and fastened at the heads, temporary leading beams were bolted on the outside of the piles formerly described as driven 15 or 20 feet apart, all round the outside of the main leading frames. These spaces were now filled up with piles set close side by side, and driven down to the rock: then the lower temporary leading frame was taken off, the upper one being left to steady the piles until the puddle was brought up in the cofferdam. The inside braces were now put in; they rested upon brackets fastened to the main piles, and also upon the tops of these piles which were driven to the rock under the main-stretching brace. The braces were besides prevented from floating, by brackets nailed above them, and by stones laid on temporary scaffolds. The outer row of piles, in front of the cofferdam, was begun by placing a pile engine on a float made of large fir logs from 40 to 50 feet long, and one foot square. These were fastened together by half logs spiked across them. The width of this float was 14 feet, which just filling the space between the rows of piles, was thereby kept steady; and this was also the means of getting readily into a straight line the outer row of piles which stood at twenty feet apart. These being driven, a long leading beam was made by fishing, as formerly described, and bolted to the outside of these piles on a level with the inside leading frame. A temporary leading beam was then fixed on the inside of the outer row of piles, one foot lower than the outside beam; there was then a scaffold erected on the top over the space between the rows of piles, by which means were taken to secure the outer piles from any motion they might otherwise have had with the tide. The piling-engine was next got on this scaffold, and an outside leading beam bolted at the same level with the middle leading frame on the inside. The space betwixt the first-mentioned piles was now filled up by others set close together and driven down to the rock, by the time the outside and two return rows of piles at the angles were all driven: the bank and puddle at each side of the dam was brought forward to the front of the inner row of piles.

The connecting bolts were now put in, one through each main pile, opposite the middle leading frame, through which it went, also across the puddle, and through the front leading beam on the outside of the outer row of piles. These connecting bolts were fastened by a strong cotterel through each end, with a strong iron-plate under them. There were likewise two of these connecting bolts through each main pile in the front of the dam; one through the middle leading frame, and the other one foot below low water common spring-tides, at which place the lowest leading beam on the outer row of piles was fixed. The two rows of piles were kept together at the tops by means of a piece of strong timber being gained on the side of each main pile on the inside of the dam, and being spiked down on the outside leading beam.

Plate XCVII.

This description, with the representation in Plate XCVII. will, we trust, convey a distinct notion of the progress of this difficult operation. The description may, no doubt, to some appear minute, but those engaged or interested in similar works will not think it more than sufficient; and we consider it a fortunate circumstance, to be enabled to furnish so minute and faithful an account of it.

Of Piers.

Of Piers.

The piers of most of the ancient bridges in England were made of great thickness, in proportion to the span of the arches which they sustained. In London bridge some of them are larger than the original openings of the arches.

Their breadth.

These piers consisted of small rubble stone laid in lime-mortar, surrounded merely by a thin casing of squared stones. It is probable that the Roman bridges, whose piers were said to be equal in thickness to one half the span of the arches, were constructed in the same manner. But these piers occupying so great a proportion of the breadth of the river, either raise a head, and tear up the bed, or cause a very great widening of the banks. In order to avoid, or as much as possible to lessen these inconveniences, the piers have been reduced in thickness, and constructed wholly with squared stones, each course being of equal height quite through the body of the pier. In Bewdly, Conon, Dunkeld, and Lovat bridges, Mr Telford has made them from about a seventh to less than an eighth part of the span; and at Neuilly, Mr Perronet has given only one-ninth part of the span to his piers. All these measures are taken at the springing of the arches.

In discussing the principles of bridges, it has been demonstrated, that the thickness ought to be regulated by the span and rise of the arches, combined with the height of the piers; we have therefore cited the before-mentioned examples, merely as being some of the narrowest already practised with success on a large scale, but upon which engineers ought in future to improve.

Their height.

In determining to what height piers ought to be carried, great attention should be paid, not only to the highest points to which, from the best evidence, the water appears to have risen, but also to the nature of the country where the bridge is situated. If, in the course of the upper part of the river, there are large lakes, or if the adjacent country is very flat, there can be no risk of the flood rising to a very great height; but if there are no lakes in the course of the river, and if the bridge is placed where the adjacent country on each side is above its level, then the floods being thus confined, may possibly rise to a still greater height than has been formerly noticed. For example, in the rivers Ness and Lochy in Scotland, which in their upper parts are connected with large lakes, the floods never rise more than four feet above the level of low water; but in the river Clyde, where there are no lakes, the floods have lately, near to Glasgow, risen 20 feet; and the river Severn, in England, since it has been embanked in the low lands in Montgomeryshire, has frequently, in some parts of Shropshire, risen 15 feet.

Unless the bed of the river consists of rock, or is completely protected by inverted arches or well-constructed causeways, it is advisable to raise the piers as near to the line of ordinary floods as due regard to the arches and access will admit of; and at all events to avoid finishing them under the line of ordinary low water.

The dimensions of the piers having been determined, the next step is to consider their shape. The portion of pier which supports the arch is usually of an oblong form, with its sides right-lined and parallel; under low water, the pier increases in breadth downwards to the foundation, at the rate of from one inch in the Pont Royal to nine inches in the bridge of Neuilly, for every foot in height, and the platform extending from two to six inches beyond the masonry. The rate of this increase of breadth must be in some measure regulated by the nature of the foundations, and the proportions which the body of the pier bears to the span of the arches. In Neuilly, the thickness of the pier being at the springing of the arches only one ninth of the span, it became necessary to spread the base, in order to embrace a considerable extent of ground; but as in practice it is not easy to get the workmen to make the back part of the beds of the outside stones equally perfect with that which is near the face, these large offsets throw too much of the weight upon the imperfect workmanship of the beds, and should therefore be avoided. An increase at the rate of three inches for every foot in height, appears preferable, and has been adopted in several of the British bridges. Large offsets certainly afford an opportunity of supporting the centres very advantageously; but this may be sufficiently obtained by having them three or four inches in the stone-work, and making the wooden platform to project considerably more around the pier. The shape of the points of the piers are, 1st, Acute-angled; 2d, Right-angled; 3d, Semicircular; and 4th, Having two segments of a circle intersecting each other. The 2d and 4th seem the preferable modes. These projecting points usually diminish from the line of each side of the piers, though we have seen them formed upon a narrower base than the breadth of the pier, leaving a square projection on each side; but these projections obstruct the current, and cause a head which frequently injures the foundations. In the case of St Maxence, Perronet has departed from the right-lined figure, and also divided the body of the pier longitudinally into two parts, leaving an opening between them equal to their thickness; but as every water conduit should have its sections equal, and its course as direct as possible, this mode seems very objectionable; it likewise diminishes the strength of the pier; and as he has made an inverted arch under the openings, to embrace the whole foundation, the saving of masonry, when compared with the whole mass, is very trifling; and, with due deference to that able engineer, we cannot help observing, that, in point of taste, a work which is to convey an idea of durability, should rather have the appearance of stability towards its base, and diminish as it ascends.

Each course of stone around the outside should be laid header and stretcher alternately; the stretchers should be from 18 inches to two feet in breadth; and the headers, which should be about one third of the whole face, should each be from three to four feet in length: their upright, or end joints, should be correctly squared, at least one foot in from the face, and in no part be more than one inch in width. The interior, or filling in stones, should be of equal height to the outside stones, and have their upright joints not more than one inch in width: they should break joint at least one foot. The first, and all the succeeding courses, should be laid flushed, both their bed and upright joints, in proper mortar. The French engineers allow from two to four and six lines for the thickness of the outside mortar joints: in England about an eighth of an inch, when compressed, is usual. All the joints should be run full of grout, where there is any vacancy after the first operation. The French cramp all the outside stones with iron cramps, from 15 to 18 inches in length, run and covered with lead; but if the masonry be composed of large stones, well worked, and laid to break joints properly, iron cramps appear an unnecessary expence. Great care should be taken to select the hardest and most perfect stones for the projecting points of the piers, especially those on the upper side of the bridge. The points should be carried up at least to above high water mark, and at that height they are usually finished by sloping them back to the face of the spandrels. In some cases, a projection of a circular or polygonal form is carried up to the level of the roadway. The courses of stone may vary in thickness, 18 inches being a good average.

The abutments are managed in the same manner as the piers, only their backing is in general made of good rubble stone, laid in lime mortar. This rubble work must be levelled and grouted at the height of each course of square masonry; great care being taken to have the whole properly bonded and connected together. If the bridge is wide, a buttress, or counterfort, should be placed behind the middle part of the abutment. This should be made of rubble work, well bonded into the body of the abutment; and having, besides, thin hoop-iron, laths, or half-inch boards, laid in as they are carried up. This is a necessary precaution in all large buttresses constructed with rubble stone.

After all the precautions which can be taken to secure the foundations of piers, accidents sometimes happen to the best constructed works. In the bridge of Orleans, though conducted by the best engineers in France, one of the piers sunk 18 inches, French measure, although the foundation had shewn no symptoms of being worse than the others. The points did not sink with the body of the pier, but both the masonry and platform broke off at these points. The pier was loaded with 1,200,000lbs. for five months. The points were then taken down under low water and rebuilt. This was in 1759; we have not heard of its sinking more. But, in 1761, the water having swept away about two feet from the piers, induced them to drive two rows of piles quite across the river, six feet distant from the lower points of the piers, and fill in rubble stone.

Practice.

In 1747, one of the piers of Westminster bridge sunk 18 inches at one end, which caused the taking down of two arches. The pier was loaded with 700 tons, or 1,568,000lbs. It was cased round the foundation with strong piles, to prevent any more gravel running out. The pier was taken down for some distance under low water, and rebuilt level; the two arches were also rebuilt; but, to lighten the pier, arches were constructed in the spandrels, and the same was afterwards done at Orleans.

At Orleans, the cause of the sinking of the pier was not discovered. At Westminster, it took place from there being no piles under the foundation, and from the ballast men lifting gravel for covering the bridge too near to the foundation of the pier. This circumstance ought to prove a caution to engineers, never to leave unprotected, a foundation composed of gravel, sand, or mud.

OF CENTRES.

Of Centres.

Having carried the piers and abutments up to the height at which the arches are to spring, the next object is to set up timber frames, usually known by the name of centres. To construct and erect these in a judicious manner, is one of the most masterly operations in bridge building; but as this forms also a principal feature in CARPENTRY, we must refer the reader to that head, under which he shall find the subject fully discussed; and at present content ourselves with giving drawings, and very general descriptions of centres, which have been used in constructing some of the principal bridges in Britain and France. See Plates XCIX. and C.

PLATES XCIX. and C.

In a centre, the principal objects to be kept in view, are to construct and fix such a frame as shall support the weight of the arch-stones, through all the progress of the work, from the springing of the arch, to the fixing of the key-stone, without changing its shape, and to admit of its being removed with safety and ease. From inspecting the Plates, it will be seen that the French engineers brought the timbers of each frame very near together, and kept them very narrow at the footing upon which they rested; whereas, in England, it is the practice to place the timbers more apart, and extend the footing. The comparative merits of these principles will be discussed when treating of CARPENTRY; but we are warranted in observing, that the English centres have succeeded best in practice. At Neuilly, previous to the centre being eased, Perronet states, that the arch (of 120 French feet) had sunk 13 inches, and it afterwards sunk 10½ inches more, making in all 23½ inches. At Mantz, (also 120 French feet span,) before the centre was eased, the sinking was 12 inches, and it afterwards increased to 20½. In Britain, no such imperfections have ever been known. In the

Practice.

largest arches constructed with cut stone, under the direction of experienced persons, the sinking has been scarcely discernible. In Dunkeld bridge of 90, Tongueland of 118, and Aberdeen of 130 feet span, the sinking has never exceeded three inches, consequently no derangement of general form or of joints took place. In rivers where there is no navigation, or where there is no risk from the floating down of ice or timber, the centres are framed with horizontal tie beams, and supported in sundry places by frames or piles fixed in the bed of the river; and, in old bridges, corbels of stone were frequently placed in each abutment, to receive the beams of the centres. But when any of the before-mentioned inconveniences are to be guarded against, the frames are trussed so as to leave a large proportion of the space in the middle unobstructed. In this case, more art is required in framing and placing the centres, so as to afford effectual support, and admit of a perfect mode of lowering and removing them. The offsets of the stone work and platforms, afford the most substantial abutments for the supports; but unless the bed of the river is very soft, great advantage may be derived from also placing frames or piles at a small distance from the body of the pier; and as in large arches this operation cannot incommode the navigation, it ought to be made use of. The modes of lowering or easing the centres practised in Britain, appears to be much more simple and safe than those described by Perronet, as practised in France. In France, the bridgings across the frames, upon which the archstones were set, were cut away, either beginning at the springing, and proceeding regularly upwards to the key, or otherwise, by first cutting out each other bridging, over the whole centre, and next, each other that was left, and so alternately, until the whole were removed. In Britain, the centres are set upon beams; between the centres and the beams, wedges are introduced, sometimes in separate pairs across, under each frame; sometimes the wedges are formed or fixed upon one piece of wood, which reaches across the whole width of the soffit, passing between all the centre frames, and the supporting frames or beams; and, lastly, the wedges are formed or fixed upon a piece of wood, which is placed longitudinally under the foot of each centre frame, and resting also on the supporting frame. When the centre is to be eased, these wedges are driven along each other, or the pieces of wood on which the wedges are formed or fixed, are driven back so that the wedges are moved along each of their inclined planes into larger spaces than they had before occupied. In all these cases, the whole centre is made to descend very gently, and may be suffered to rest at any part of the operation. The mode of striking the wedges is varied according to circumstances. It is, in the smaller arches, usually performed by men with mauls striking each pair of wedges. In the larger arches, such as Westminster and Blackfriars, it was performed with a beam mounted as a battering ram. The frames are placed from four, six, to seven feet apart, from middle to middle, and are secured with cross ties and braces.

When there are three arches, two centres will be required; and when there are five arches, three centres will be needed. See page 542.

OF THE ARCHES.

The centres being placed, and properly secured, the setting the archstones is proceeded with. The masonry of the piers and abutments, near to the springing, is carefully adjusted; and it is usual, immediately under the commencement of the curvature, to lay a capping, string, or cordon: this, by having a small projection, covers any trifling inaccuracy which may have taken place in setting out or carrying up the abutments and piers. If the courses have hitherto been worked with horizontal beds, the upper bed of this capping course is sometimes made to suit the radius of the arch. After the general form and dimensions of the arch have been determined, the form and dimensions of the archstones is of the first importance, for it is upon them that the great feature of bridge building depends. The nature of the different forms into which they have been, may, or ought to be made, have already been fully considered when treating of the principles of bridges; we shall therefore now only simply state various instances where different sizes have been practised in great works.

Country.	*Particular bridges.*	*Span.*	*Rise.*	*Depth of the archstones at crown.*	*Engineers.*
				Ft. Ft.	
French.	Pont Royal.	72	24	4 and 5	Mansard.
	Blois.	81	27 6	4.3 and 5	Sieur Gabriel.
	Orleans.	100	30	6	Hupeau.
	Neuilly.	120	30	5	Perronet.
	Mantz.	120	35	6	Perronet.
	Nugent.	90	28	4.6	Perronet.
British.	Westminster.	76	38	5	Labylie.
	Blackfriars.	100	43	5	Mylne.
	Tongueland.	118	38	3.6	Telford.
	Dunkeld.	90	30	3.2	Telford.
	Conon.	65	21.8	2.6	Telford.
	Bewdly.	60	20	2.2	Telford.
	Llanrwst.	58	17	1.6	Inigo Jones.

From the foregoing examples it will be seen, that the French have uniformly used very deep archstones, for their outside or headers are many of them more than those here described for the body of the arch; and this circumstance no doubt, joined to their wide mortar joints, led, in some measure, to the enormous sinking of their arches. In Westminster and Blackfriars, the archstones are equally deep; but by the dimensions of those in Tongueland bridge near Kirkcudbright, viz. 3 feet 6 inches, it may be observed that no such depth is necessary; for here in an arch of 118 feet span, erected over a river, where, besides about 10 feet depth at low water, the tides rose above 16 feet, which of course rendered it somewhat difficult to fix and preserve the centering; yet no sinking took place to open the joints, and the whole arch has ever since remained stable and perfect. Also in Dunkeld bridge, the arch of 90 feet span has archstones 3.2 deep, which are also quite sufficient. No doubt the mode of managing the spandrels in both cases should also be taken into account, but we are persuaded, that archstones are, in general, made much deeper than necessary; and on account of the unnecessary weight and expense incurred by this practice, we consider it our duty to draw the particular attention of the young engineer to this point. He may, in the instance of Llanrwst bridge, observe, that our British Palladio (Inigo Jones,) has long ago shewn us a bold example, which has stood the test of 174 years. In Llanrwst bridge, the middle arch of 58 feet span, 17 feet rise, and 14 feet in width across the soffit, the archstones are only 18 inches deep. We have carefully examined this arch, and can assure the reader, that it is not from the peculiar excellence of the workmanship it derives any advantage. The archstones vary in thickness from 5 to 16 inches; many of them are 8 and 9 inches. There are, in some instances, two headers to answer one course of common archstones, and in others two courses of archstones to answer one header. The masonry of the spandrels is very irregularly laid; and as a complete proof of the stability of the middle arch, from a defect in the foundation of the west abutment, one of the side arches fell, and was rebuilt in 1703, but the others remained uninjured. The piers are 10 feet in thickness, and the arch springs about 3 feet above the bed of the river. The road over the bridge is certainly too steep, and thereby no doubt lessens the weight upon the side arches; but we are convinced, that the road might be made with a declivity of 1 in 24, and the same degree of lightness preserved, by constructing the spandrels hollow, in the way which will hereafter be described, instead of filling them up solid as they are at present. We are more particular in describing this bridge, because of the authority it derives from the celebrity of its designer, and the length of time it has endured.

From 2 feet 6 inches to 4 feet, is a good length for the face or soffit of the archstones. When they are longer, as the beds can scarcely ever be worked and set exactly true, they are apt to break when the weight comes upon them; and when shorter, there is not sufficient space to overlap or break the joints properly. Each course should be of equal thickness quite through between the headers. The thickness of each course should be from one-third to one-half their depth, and they should be chamfered or rusticated along the bed joints, and also those of the outside heads. The beds should be worked as true as possible for the whole breadth of each stone, the neglect of which destroys every other precaution. Each stone should be laid so as just to swim in the mortar, and be struck with a maul two or three good blows. The joints of the headers should be of equal thickness with those of the other stones in the same course. Inexperienced masons, by laying the headers with thinner joints for show of fine work, frequently create an unequal pressure, which bursts or splinters the headers, before the interior archstones come to an equal bearing.

The French cramp the headers with iron to the interior archstones; but if the masonry is good, this seems totally unnecessary, nor is it practised in Britain.

Practice.

In setting the archstones, care should be taken to keep each course pointing in the direction of the radius; and in order to enable the workmen to do this correctly, the thickness of each course should be marked upon the outer ribs, and its line of direction upon the lower part of the beams of the same ribs. Attention must also be had to carry on the courses equally on each side of the centre, and also to carry up masonry over the solid part of each pier in the spandrels. If this is not attended to, too much weight on one side will derange the form of the centre; and there is sometimes a necessity to lay some temporary weight upon the crown of the centre, until the load approaches the middle. In case of more arches than one, and the arches flat, care must be had not to expose one side of the pier until it has a sufficient weight upon it, or is guarded by resistance on the opposite side. At the bridge of Mantz, by a neglect of this sort, one of the piers was pushed 4½ inches out of the upright. It was afterwards by loading the opposite side, made to return 2¼ inches.

The keystones should be driven to fill their places firmly, but not so as to require much force, otherwise they will derange the rest of the joints, and alter the shape of the arch. As soon as the keys are driven, all the back and end joints of the whole arch should be carefully examined; and if from the drying of the mortar, or defect of any of the stones, some vacancies appear, they should be run full of mortar, and firmly wedged with slates; the whole should then be left for some time to dry and indurate. The length of this time must depend upon the state of the weather, the qualities of the stone, and also the mortar. While this operation is going on, the masonry should be brought up in the spandrels to the level of about ¼ of the rise of the arch. This may be of rubble work, but it should be laid closely, in regular courses, in good lime mortar, and abutting firmly against the archstones. The outside stones should, in the part over the pier, be carried up to the same height; but immediately adjacent to the archstones, they should be stepped or racked back, and left so until the centre is removed, because if finished close up to the back of the archstones, the least sinking of the arch would cause a fissure. The spandrels having been carried up to the proper height, and the mortar having acquired a proper consistence, the centre may be eased and removed in the way formerly described.

The centres having been removed, the soffit of the arch should be carefully examined, and the joints if necessary, pared, cleaned out, and pointed with mortar. The advantage arising from champhered or rustic joints will now appear: they prevent the edges from chipping, and cover any trifling inequality, so that it is the crossjoints only which require paring: the champhered joints also give an appearance of lightness to the archstones. It is sometimes the practice to lay around the arch a thin course of stone, plain or moulded on the edge, which projects a few inches below the face of the archstones. This becomes necessary if the headers have any twist, because it admits of the spandrels being set correctly straight, without shewing the twist or other defect.

Of Spandrels and Wing Walls.

Spandrels and wing walls.

When the arches have been completed, and the centres removed, the points of the piers are brought up, and are either finished at some distance above high water mark, by sloping them back to the face of the spandrel, in either a triangular or circular form, or they are disposed, so as to receive columns, pilasters, circular, or semi-octagonal turrets; in all of which shapes very excellent works have been constructed. The two latter modes afford greatest stability to the superstructure in acting as buttresses, and on this account they agree more correctly with edifices of this kind. It is needless to observe, that in whatever way the points of the piers are terminated, it is absolutely necessary that it be with stones of good quality, firmly connected with the spandrels. The spandrels of arches have been finished in a variety of ways: in many of the old bridges they were filled up with earth, or gravel; and in small bridges the masonry should be brought up to the level of about one fourth of the rise of the arch, and then be sloped up to the top of the back of the archstones, and the remaining space filled up with gravel or stone rubbish, (not clay). In the large French bridges, they have been filled up entirely with rubble masonry; but this throws an unnecessary weight upon the arches. To remedy this, arches have been made sometimes quite through, and kept open, and sometimes concealed; and in Westminster, and Orleans, vaults have been constructed to lighten the piers which sunk, and those adjacent to them; but as these arches are easily deranged by any settlement of the main arch, and by that means rendered injurious rather than beneficial, another more simple and effectual way has been devised. This has been practised with perfect success in Tongueland bridge of 118 feet span, and Dunkeld of 90, as well as in many other instances, and ought to be generally adopted in all bridges composed of large arches. This mode consists of building walls longitudinally: they are founded upon the solid rubble masonry, which has already been described; and increasing in length as they advance in height, they rest upon and abut against the backs of each row of archstones, and act as struts between them. These walls are placed from two to three feet apart from each other, and are made from 18 inches to three feet in thickness, according to their height, and the nature of the materials of which they are composed. They are kept steady, by laying long stones occasionally across from one wall to another. The outside spandrel walls, running parallel with these, and being connected with them by long stones, become a part of the general frame. These walls are all carried up to near the level of the top of the archstones, where they are covered with two rows of flat stones where they can be procured, or where that is difficult, the openings are arched over, (Gothic or pointed,) to lessen the lateral pressure. Sometimes the middle openings are arched, and those next the outside covered with flat stones. Small openings are made in those walls, upon the top of the rubble masonry, through which any water that may fall into, or be by any means collected in the spandrels, is conducted to one point, where it issues through a pipe inserted in the archstones; Small doorways are also made through the walls; and by a hatchway constructed in the top pavement, a person may, at any time, descend, and examine the state of the interior parts of the spandrels. See Plate CI.

The outside walls are usually made thicker than the interior walls: they are generally in good bridges faced with square masonry, and have a rubble backing. The facing is composed of headers and stretchers, the latter being from 15 to 18 inches in breadth, and the former from 2 feet 6 inches to 3 feet in length; the whole thickness of square masonry and rubble, making about $\frac{1}{5}$ of its height upon an average. When these walls are very high, a wall is also built along the middle of the piers, and abutments which cross the other, and into which they are tied by bond stones, or pieces of timber laid at about every six feet in height. When these spandrels have been brought up to the level of the top of the arch-stones, they are dressed into the slope which it is proposed to make the roadway, which we recommend to be 1 in 24. Here there is usually laid a cordon or facia course, and cornice, which extends along the whole of the arches, spandrels, and wing walls. This is made varying in thickness, height, and shape, according to the fancy of the engineer; but the upper course of it should be of sufficient breadth to allow for the projection, and to pass quite through under the parapet, which will, by standing upon it, keep all the work secure; the upper side of the projecting part should have a slope or weathering, to throw off the water which will fall upon it, and the upright joints should be set and pointed with British cement.

When arches are so constructed, that each will stand independent of the others, and which appears the true principle of bridge building, the abutments are merely piers, placed next the shore of the rivers; and we have accordingly hitherto considered them as such. The French engineers, from the flatness of their arches, and the great weight of the *voussoirs* and masonry with which they have loaded them, have considered that the greatest push should be against the abutments, and have made them much thicker than the piers. In Neuilly, when the piers were 13 feet, Perronet has made the abutments 30 feet 3 inches. This appears to be a mistaken mode of proceeding, because the abutments, besides their own thickness, have generally wing walls behind them, upon which, by making the back of the abutments in a circular form, they will abut and be prevented from moving backwards. The wing walls have sometimes their foundations laid at the same depth as the abutments, and are similarly secured by piles and platforms. If the ground is firm, they are founded by steps rising up as they retreat. This, when practicable, saves much masonry. Their thickness is made from about $\frac{1}{4}$ to $\frac{1}{3}$ part of their height upon an average; but as the space between is filled up with earth, they should be formed in curved lines horizontally and vertically, and also have a batter of from $\frac{1}{6}$ to $\frac{1}{8}$ of their height, and this should be provided for in setting out their foundations. When the wing walls are very long and high, there should be a cross wall built,

e. reaching between them, into which they should be tied; and sometimes vaults may be constructed between them, and converted to useful purposes.

At the terminations of the wing walls, there should be newells or pilasters; and these are made round, square, or octagonal, as is most suitable to the general design. The masonry of the wing walls is similar to what has been described for the outside walls of the spandrels.

OF PARAPETS.

ts. The whole work having been brought up to the level of the cordon, or cornice, and that having also been set, the parapets are to be constructed. They are made from three feet six inches to six feet in height above the footpaths or roadway: four feet four inches is quite sufficient for protection and decoration, and is not so high as to obstruct the view. Parapets of the best finished bridges, consist of a plinth, dado, and coping. In their large bridges, the French make the thickness of the parapet two feet; in Britain, the dado or middle member is made only from 10 to 12 inches in thickness, and the plinth so much more as to leave an offset of about an inch on each side. If the plinth has mouldings on the upper edges, the thickness is made somewhat more. The coping is made from six to nine inches in thickness, and has projections on each side. The top is most generally made to slope each way from the middle, sometimes in straight lines, and sometimes circular; and there are instances of the slope being made in one inclination, from the inside to the outside. Sometimes the edges are plain, and often moulded: when they are plain, a cavetto or small hollow is cut in the projecting part of the bed, to prevent the water, which falls on the top, from running down the face of the dado. In or near to large cities and large towns, or near to the dwellings of the wealthy, instead of the dado being all made solid, ballusters are introduced; and these occupy a larger or smaller space, according to the fancy of the designer. Sometimes there are half ballusters on the outside for appearance, the inside being solid. There are situations which require this. The north bridge in Edinburgh being exposed to violent gusts of wind, the open ballusters were found inconvenient, and the spaces between were closed along the inside.

All the stones for the parapets should be of the best quality the neighbourhood affords: they should be worked and set very correctly. The ballusters are frequently turned in a lathe, and have spaces cut in the plinth and coping to receive their top and bottom ends: the coping must be secured in the end joints, by dovetails, cramps, or cast iron dowels. The latter mode is the best: the dowels are four inches in length, and about one inch square: they are let into the middle of the end joints as the stones are set; the rest of the joints, especially the lower side, is made up very closely with lime mortar, or British cement, and a small perpendicular channel is cut in each stone, which, when joined, communicates from the top to the dowell: down this melted lead is poured, which fills up the space round the dowell, and also the small channel; or British cement may be used instead of lead. Practice.

The outline of the cornice and parapet should be a curve for the whole length of the bridge, which abutting on each shore, conveys a stronger idea of security, than when the top is a horizontal line; but the real advantage is the road way being kept constantly clean and dry.

In bridges when the parapets are made solid, and where proper stones can be procured, it is advisable to make each parapet of one row of stones, about three feet six inches in height, and diminishing from 12 or 14 inches at the bottom, to 8 or 9 inches at the top, which is made convex: each joint should be well secured by iron dowels.

Where parapets are made of rubble masonry, from 18 to 24 inches in thickness is required, to admit of two stones in breadth. These should be carefully bonded together, and coped, either with a course of squared stones dowelled together, or otherwise with stones about nine inches in depth set on edge. These parapets should have their top and coping curved down to the ground at each end; and be there secured by a stone of considerable size, fixed firmly under the surface.

OF THE ROADWAY.

In places of great thoroughfare, there are usually Roadway. footpaths: indeed, for the protection and comfort of foot passengers, who form the greatest proportion of mankind, footpaths ought to be made along every bridge, and also every road. Nothing can be more degrading and unfair, than that those very persons, by whose labours bridges and roads are obtained, should be mixed with, and exposed to be trampled on, by horses, or crushed by wheel carriages.

When the spandrels have been covered by arches or flat stones, it is only necessary, for the footpaths, to build with rubble stone foundations for the outside curbing. This curbing should be of hard stone, (say granite,) about from 12 to 15 inches in depth; and from 6 to 9 inches in thickness on the upper edge. Their lengths should be as great as can be conveniently procured, and they should be set in lime mortar. The space between the curbing and the parapets, should be paved with hard flag stones, 3 or 4 inches in thickness, well faced and jointed. They should be laid in lime mortar upon a bed of coarse sand, or clean gravel. In large bridges, the whole of the footpaths is sometimes covered with granite. The breadth of footpaths varies from three to more feet: three feet will admit of one person walking with safety, four feet six inches will admit of two, and six feet of three. The top of the footpath should be from 6 to 10 inches above the bottom of the side channel. Along the outside of the curb stones, the French place borne or fender stones; but passengers, horses, and carriages, may get entangled and injured by them; it is therefore preferable to have small paving stones set, forming an inclined plane between the outer edge of the curbing, and the bottom of the side channel: this will effectually prevent carriages from coming upon the footpath.

Practice.

If the carriage way is to be paved, there should be laid upon the covering of the spandrels, and over the top of the arches, a bed of gravel mixed with loam, about from 12 to 18 inches in thickness, worked with water into the consistence of mortar. When this has become moderately dry and firm, squared whin paving stones, about four inches square, and six to eight inches in depth, are to be set and well beat, making a curve across the road of four inches in 24 in breadth; and that curve should be terminated by sinking four inches more in the distance of two feet from the inclined plane, which has been formed along the outer edge of the curbing stones.

If the roadway is to be made with gravel only, it is necessary to lay it 22 inches in depth in the middle, and 18 inches near the sides: It should contain a small mixture of loam, so that when worked with water, it shall consolidate and afterwards exclude water. There should still be about 18 inches in breadth, on each side next the before mentioned inclined planes, paved with small squared whinstones; because by forming the roadway a little convex across, and with a declivity of 1 in 24 lengthwise, it is meant that the greatest proportion of water which falls on the bridge shall run along each side.

In small bridges, where there are no cavities in the spandrels, it is necessary to fill them up with coarse gravel with a mixture of loam, working it with water as put in; and if this simple operation is carefully performed over the arches, the trouble and expense of coating with cement, and other substances, may safely be spared.

The water which falls upon the roadway of the bridge, must be conducted beyond the extremity of the wing walls, and be there introduced into covered drains, or open paved sewers, and be afterwards carried off in the most convenient direction.

In or adjacent to towns, walls or quays are usually carried from the abutments along the banks of the river; and even in the country it is frequently found to be advisable for protecting the abutments; but as the description of this sort of works falls more properly under that of wharfs, we shall refer the reader to the articles HARBOUR, and INLAND *Navigation*.

We have known bridges, whose arches were of considerable size, constructed with bricks. In this case, it is customary either to have the whole of the piers, or at least the upper points cased with stone; but if the points are circular, and bricks made of a suitable shape, and outside bricks laid headers in British cement, the work will be sufficiently substantial. It is necessary that the bricks for the whole bridge be made of good clay, well prepared and tempered, be burnt hard, and laid with thin beds of mortar, but to be properly flushed as they are laid, and grouted afterwards. It is likewise necessary, after the arches are closed, that the centres be suffered to remain until the mortar has acquired a considerable degree of consistence. It will greatly improve the work, if laths or hoop iron are laid in as it advances.

In respect to the formation of arches, although it has been fully treated under the head of Theory, yet we cannot help here observing, that the mode adopted by Perronet at Neuilly has many advantages; for while the main body of the arch has a rise of about one-fourth of the span, the outside headers, by being a flat segment, gives an appearance of lightness, and in high floods suits the contraction of the vein of water entering the arch.

We have been minute in treating the Practice of bridge building, considering it of importance to the young engineer, to be thoroughly informed of the most improved modes adopted in different countries by experienced persons. He will thus be enabled to judge how far all, or any of them, are applicable to the works he is engaged in; or he may draw from them hints, which may lead him to improve upon all former practice; and, at all events, this will prevent the waste of time in contriving modes already acted upon. We also conceive, that candid foreigners may profit, by being made acquainted with the British manner of conducting the various difficult operations connected with bridge building; for by carefully considering the accounts given by the ablest French engineers, it will be evident, that perhaps one-third part of the materials and labour they have hitherto used, may be saved, and their defects avoided by adopting modes practised in Britain. We freely acknowledge and admire the portion of science which they have bestowed upon those important works. We are greatly indebted to them for so minutely registering each operation, and for so candidly describing their errors and defects. In Britain, we have no such correct journals of similar works published, and very few we suspect preserved. The cause of this, we conceive to originate in the French bridges having been entirely under the direction of its government, who employed men of liberal education, and from whom the officers at the head of their department required regular and minute details of each operation, from the commencement to the completion of every work; and for this purpose, they were no doubt furnished with a sufficient number of superintendants and clerks, who also acted agreeably to forms previously arranged. Whereas in Britain, with a very few exceptions, these useful works have been constructed at the expence, and under the direction of particular, and frequently very limited districts, communities, or individuals, whose chief object has, in general, been economy. For it, they have had recourse to every means that ingenuity could devise, both with regard to the plans and performance. The effect of this has been to create a great competition amongst all persons who have had experience, or any idea of such works. The desire of the competitors to have their proposals accepted, has led them to recur to every project which could reduce the expence; and though from the want of knowledge and desire for economy in those who decided on the merits of the proposals, very frequently inferior plans have been adopted, yet, from the sagacity and good management of the practitioners, we have scarcely ever known, in any work of magnitude, defects similar to those described in the most perfect of the French bridges: indeed such defects would have rendered the works so inadmissible, that the contractors would have been obliged to take down and reconstruct them.

This mode of competition, joined to the quantity of floating capital always in this country, ready to be applied in any way which promises profit, has, of late years, led to an extreme upon this principle, and rendered caution necessary in selecting, even at an apparent increase of expence, the best qualified of the competitors, of whom we have frequently known upwards of twenty for one project.

WOODEN BRIDGES.

The superstructures of wooden bridges have been constructed in a variety of ways, but their abutments have usually been made of stone. In all, therefore, which regards the foundations and masonry of the abutments, the process is precisely similar to what has been described for stone bridges, only the weight and horizontal thrust of wooden bridges being much less, require a smaller proportion of masonry. Where the streams are narrow, it is only necessary to lay beams across, reaching between the abutments at the distance from each other of four to five feet from middle to middle, and to have braces reaching from some part of the face of the abutments to the lower side of each beam. Besides these supports, the outer beams are usually trussed up by means of the side railing. Across the beams, planking of three or four inches in thickness is laid to receive the gravel. A plank is also fixed along the inside of each railing, to support the side of the roadway. The railing is secured by braces fixed on the outside, or by strong iron knees on the inside.

When the stream is wider than to be reached across by one length of beams, the most usual way has been to drive rows of piles at each length of beams, in lines parallel with the current of the river, at about four or five feet distant from each other, (middle to middle,) and also fixing braces up and down the river to support each pier, or row of piles. These piles are driven and fixed in the same manner as described for the foundations of stone piers. They have usually diagonal braces crossing each side of the row of piles in the form of an ×, and which are bolted together at each pile. Tenons are formed on the top of each pile, upon which a cap is morticed; and in order to shorten the bearings, pieces of timber are laid immediately under each beam, extending five to ten feet on each side of the cap. The rest of the structure is completed in the same manner as has been described for one bay of beams. A very perfect model of this sort of bridge was constructed by Mr Peter Nicholson, upon the river Clyde at Glasgow. It is only a foot bridge, but the principle is excellent. See Plate CII.

Instead of driving piles for supports, frames are sometimes constructed on dry land, which are afterwards sunk in their proper situations, after the bottom has been made level to receive them. These upright frames have grated frames attached to their base, and which extend on each side of the upright frames. Through the spaces formed by this excess of breadth, short piles are driven to keep the grating and frames secure. These upright frames have their sides covered with planking; and in order to add to their stability, the lower part is filled with gravel or small stones. Upon the edges of the frames which face the stream, triangular pieces of cast iron are fixed, to prevent ice or other matter floating down the river from injuring the bridge. Fender piles are sometimes driven, so as to form a triangle at some little distance above, and opposite to each pier. This mode has been adopted with perfect success by Mr Telford on the Severn, 8 miles below Shrewsbury. These pilings and frames, in deep and rapid rivers, being not only difficult and expensive in the first instance, but notwithstanding all the precautions which can be taken, liable to injuries not easily remedied, wooden bridges, of great extent, have been constructed from bank to bank, without any intermediate supports. This has been performed in different ways with great ingenuity. When the banks rise considerably above the level of the river, it is usual to construct the supporting frames chiefly below the level of the roadway.

1. Merely by means of two principal rafters, whose lower ends stand on the abutments, and their points meet below the middle of the beam; or sometimes the upper points pass the outer beams, and meet below the top of the side railing.

2. By the principal rafters reaching from the abutments to an intermediate part of the horizontal beam, and having a stretching piece between their tops. There are instances of this being repeated in the same bridge below the level of the beams, and also again in the side railing of the roadway.

3. By constructing a series of short frames, and placing them vertically in the manner of stone *voissoirs*, and upon these raising the structure of the roadway and railing. This mode was pointed out by Palladio, as suitable for wooden bridges of great extent. Gautier acknowledges that he had adopted Palladio's idea, in forming a design of a wooden bridge for the Seine; and in England, the cast iron bridges at Wearmouth, in the county of Durham, and at Boston, in Lincolnshire, are also formed on this principle.

4. A very ingenious mode has been practised by James Burn of Haddington, in a wooden bridge of 109 feet 3 inches span, and 13 feet 4 inches rise, over the river Don, about 7 miles from the city of Aberdeen, on the road to Banff. Mr Burn takes a series of frames in the form of an arch, but each set of frames is laid horizontally across the soffit. The bridge is 18 feet in width; and there are two rows of frames, or as it were two ribs placed four inches distant from each other. Upon these arch frames, a vertical framing is constructed to support the bearers, the joists, planking, and gravel of the roadway. See Plate LXXXVIII. This bridge was erected in 1803. Mr Burn built another wooden bridge upon the same principles over the same river, at Granholm, within four miles of Aberdeen, to open a communication with the extensive manufactory of James Hadden, Esq. and Co. This bridge consists of two arches, each 71 feet 6 inches span, and 10 feet 6 inches rise: it has only 10 feet 6 inches in width of soffit, and consists of one row of frames. Here there is, of course, a pier in the middle of the river.

Plate LXXXVIII.

The same artist has likewise built, on the same principles, a wooden bridge of three arches over the river South Esk, in the park of William Maule, Esq. at Brechin in Angus-shire. The middle arch is 58 feet span, and 10 feet rise; the bridge is 15 feet in width across the soffit; and there are two rows of frames in each arch, with a space of one foot between them. The piers are of stone, and the spandrels of the arches are covered with boarding, and painted and sanded in imitation of stone, so that the whole has the appearance of three neat stone arches; but the apparent effect of the carpentry by this means is lost.

We know of no wooden bridges in Britain so judiciously constructed as those executed by Mr Burn. Short pieces of timber may be employed. The principal pieces abutting endwise, little change can take place from shrinking. The principle will admit of carrying an arch to a very great extent; and by judicious arrangement, the parts may be taken out and renewed separately.

When it is necessary to keep the roadway low, the trussing is performed chiefly above its level. When the bridge is narrow, the supporting framing is made entirely on each side, and the roadway suspended between. When it is wider than is advisable to have supported entirely by outside frames, another is introduced on each side of the carriage way, separating it from the foot-paths; or there are two carriage ways, with a frame or truss between them.

Description of the wooden bridge at Schauffhausen.

The following short description, extracted chiefly from a publication by Mr Taylor of Holborn, to whose judicious exertions the British artists are much indebted, with the annexed Plates, will convey a distinct idea of the manner in which the ingenious Ulric Grubenman constructed the celebrated bridge over the Rhine at Schauffhausen, in Switzerland. Fig. 1, Plate LXXXIX., exhibits an elevation of one side, including the roof, which was covered with shingles. Fig. 2 is a cross section at AAA, shewing the uprights which are placed on the pier, the framing under the level of the roadway, the points from whence the braces proceed, the mortices for the beams which support the roadway, and the interior construction of the roof at these uprights. Fig. 3 is also a cross section at B, shewing in what manner the aforesaid roadway beams and the braces pass through the other uprights, how the uprights are connected immediately below the roof, and also how the two pieces of which they are composed are bolted together. Fig. 4 shews the form of the roof at that place. Fig. 5 shews the manner in which the roadway beams, and those along the top of the uprights, are united. And Fig. 6 explains the nature of the points at C and D, by which the several pieces which compose the beam are connected together lengthwise. In Plate XC. Fig. 1, is a longitudinal section including the lower part of the roof, and in which the situations of all the uprights, beams, braces, and iron ties, are distinctly shewn. Fig. 2 is a plan of the floor, with every part of its framing; and Fig. 3 is a similar plan of the roof.

Plate LXXXIX.

Plate XC. Figs. 1, 2, 3.

In these Figures every part of the construction is so particularly delineated, as to render its office evident by inspection. The braces proceeding from each abutment, are continued to the beam which passes along the top of the uprights, and the lowest of these general braces are actually united under that beam, thereby forming a continued arch between the abutments, the chord line of which is 364 feet, and the versed sine about 30 feet. These braces are kept in a straight direction by the uprights, which are placed 17 feet 5 inches apart. If this bridge had been formed in a straight line between the abutments, we can see no reason why this form of construction should not have supported a roadway of about 18 feet in breadth, as well as a slight roof; because, in that case, all the weight arising from the braces which proceed from the middle pier would have been saved, and the roof might have been made much simpler and lighter; but the general direction being 8 feet out of a straight line, and being loaded with an unnecessarily heavy roof, it was certainly advisable to make use of the braces from the middle pier, and thereby composing two distinct arches.

Although the principles, and even the form of constructing this bridge, might have been drawn from Gautier's publication, or even Palladio's designs for wooden bridges, yet from the account of Ulric Grubenman, being an illiterate man, there is reason to think it was from his own inventive genius that the whole design originated. There is not only a great boldness in the principal members, but also a wonderful attention to all the minutiæ of the edifice; and from even the roofing being overdone in aiming at excellence and security, it is evident this was a first attempt, and that there was an anxiety to avoid the possibility of failure, in what he conceived, and what, as far as regards him, was really a totally new project.

We are informed that John Grubenman constructed a bridge upon the same principles, of 240 feet span, over the Rhine, near Richenau; also that the two brothers erected one 200 feet span over the river Limmat, near Baden. And that the last work of Ulric was a bridge of 230 feet span at Wittingen. In this last, the form of construction was varied: instead of placing the braces diverging from each other, seven beams were built close upon each other, forming a catenarian arch between the abutments, of which the rise was 25 feet. These beams were of oak, in lengths of 12 or 14 feet, breaking joint in the manner of masonry. They were not fastened by pins, bolts, or scarfings; but were kept together by iron straps, placed five feet distant from each other, and fastened by bolts and keys. The roadway intersects them about the middle of their rise.

Over the river Portsmouth, in North America, a Mr Bludget has constructed a wooden bridge 250 feet span, nearly in the same form as the last mentioned of Grubenman; that is to say, each truss or arch consists of three rows of beams placed parallel with, but at some distance from, each other, and each beam consists of two halves, connected by dovetailed keys passing through them horizontally; and similar keys are also passed vertically through all the three beams. This has a more elegant appearance, than where the beams are laid close together; but we doubt if the frame is equally firm.

We have now given a succinct account of the different modes in which wooden bridges have been constructed: from this, the practical mechanic may judge of their comparative merits, and the propriety of their applications in the various situations occurring in practice. Their principles will be discussed under the head of **Carpentry**, as connected with roofing, centres, domes, &c. and we must therefore refer the reader to that article for further information upon this useful and generally interesting subject.

IRON BRIDGES.

In the practice of bridge building, there yet remains to be described a mode not only unknown to the ancients, but unquestionably a late invention of British artists. We are not perfectly certain with whom the proposal first originated, whether it was solely with the Coalbrookdale Company, or whether the late Mr John Wilkinson had some share of the merit; certain it is, he was very active in promoting the first iron bridge.

A thorough discussion of this subject would involve an investigation of the principles of working with iron as a material; but for this we must refer to the article IRON; yet as our readers would naturally be disappointed, if, under the head of Bridge Building, no notice was taken of the modes hitherto practised in this important change of bridge operations; we shall therefore, notwithstanding the length to which we have unavoidably been led to extend the present article, give a short account of the different modes practised in the principal iron bridges which have hitherto been constructed.

The first, as has already been observed, was that erected upon the Severn, a little below Coalbrookdale, where that river is narrow and rapid. See Plate XCI. The abutments are of stone; they are brought up to about 10 feet above the surface of common low water; here they have each a platform of squared freestone for ten feet breadth, which serves for a hauling way, and a base for the arch to spring from. Upon this platform, cast iron plates, four inches in thickness, are laid, and formed with sockets to receive the ribs. These plates, in order to save metal, have considerable openings in them. The principal, or inner ribs, which are five in number, and which form the arch, are 9 inches by 6¼. The 2d row behind them, and which are cut off at the top by the horizontal bearing pieces, are 6½ by 6 inches; the 3d row are 6 by 6 inches; the upright standards behind the ribs are 15 inches by 6½ inches, but they have an open space in the breadth of 5¾; the back standards are 9 inches by 6½, with projections for the braces; the diagonals, and horizontal ties, are 6 inches by 4 inches, and the cast iron tie bolts are 2¼ diameter. The covering plates, which are 26 feet in length, reaching quite across the bridge, are one inch in thickness. The great ribs are each cast in two pieces, meeting at the keys, which, as the arch is circular, 100 feet 6 inches span, and 45 feet rise, are about 70 feet in length. There are circular rings of cast iron introduced into the spandrels, and there is a cast iron railing along each side of the roadway of the bridge: the weight of the whole of the iron work is 378½ tons. Behind the iron work, at each extremity of the arch, the abutments are carried up perpendicularly of rubble masonry, faced with squared stone, and the wing walls are also of the same materials.

The iron work was cast and put together in a very masterly manner, under the direction of Abraham Derby, of Coalbrookdale; and the whole was completed in the year 1777. The design was original and very bold, and was, as far as the iron work goes, well executed; but being a first attempt, and placed in a situation where more skill than that of the mere iron master was required, several radical defects are now apparent. The banks of the Severn are here remarkably high and steep, and consist of coal measures, over the points of which vast masses of alluvial earth slide down, being impelled by springs in the upper parts of the banks, and by the rapid stream of the river, which dissolves and washes away the skirts below: The masonry of the abutments and wing walls not being constructed to withstand this operation, has been torn asunder, and forced out of the perpendicular, more particularly on the western side, where the abutment has been forced forward about 3 or four inches, and by contracting the span, has of course heaved up the iron work of the arch. This has been remedied under the direction of that able mason Mr John Simpson, of Shrewsbury, as far as the nature of the case will admit of, by removing the ground, and placing piers and counter arches upon the natural ground behind it. Had the abutments been at first sunk down into the natural undisturbed measures, and constructed of dimensions and form capable of resisting the ground behind, and had the iron work, instead of being formed in ribs nearly semicircular, been made flat segments, pressing against the upper parts of the abutments, the whole edifice would have been much more perfect, and a great proportion of the weight of metal saved. We have already stated, that one row of the principal ribs formed the arch; the two rows behind are carried concentric with the inner row, until intersected by the roadway, which passes immediately at the level of the top of the inner ribs. This has a mutilated appearance; the circular rings of the spandrels are less perfect than if the pressure had been upon straight lines; for a circle is not well calculated for resistance, unless equally pressed all round.

We consider it our duty to introduce these observations, in order to shew the necessity for great precaution in similar works, and how liable first attempts are to be defective; but they derogate nothing from the merit of projecting a great arch of cast iron, introducing a material almost incompressible, which is readily moulded into any shape, and which is peculiarly applicable in the British isles, where the mines of iron are inexhaustible and the means of manufacturing cast iron unrivalled.

At Buildwas.

PLATE XCII.

The second iron bridge was built upon the same river, about three miles above the former one, at a place called Buildwas. An old stone bridge was carried away by a very high flood early in 1795, and the county of Salop was obliged to restore the communication. Mr Telford, who was then, and is now, surveyor for the public works of that county, perceiving, that although, in a former repair, the middle pier of the four arches had been taken away, and that space, as well as the two adjacent arches, converted into one arch, yet that the water way had still been too much confined; and being aware that a few years previous to that time, the extensive low lands in to Montgomeryshire, which formerly acted as a reservoir, Practice. had been embanked, so that the flood-waters passed off more hastily, and in a greater body than formerly; in order, therefore, to remove all obstacles out of the way of future floods, and on account of being within two miles of the best founderies in the world, he recommended a cast-iron arch of 130 feet span. (See Plate XCII.) PLATE XCII. The magistrates of the county agreed to this, and the Coalbrookdale Company became contractors, both for the iron work of the arch, and the masonry of the abutments. Mr Telford, we understand, had some trouble in making that Company depart from their former mode of construction; but he at last prevailed in keeping the roadway low, and adopting the suspending principle, by means of a rib on each side of the bridge, which sprung from a lower base than the bearing ribs, and rose above them to the top of the railing: thus the bearing ribs were supported by the lower parts of those before-mentioned, and were suspended by their upper parts. The bearing ribs have a curve of 17 in 130, or nearly one-eighth of their span. The suspending ribs rise 34 feet, or about one-fourth of their span. There are cast-iron braces, and also horizontal ties. There are 46 covering plates, each 18 feet in length, and one inch in thickness. They have flaunches four inches in depth, and are screwed together at each joint; so that, by taking the curvature of the bearing ribs, and being firmly secured at the abutments, instead of a load, they compose a strong arch. There being only one rib in the middle of 18 feet breadth of bridge, on each covering plate, a cross rib or flaunch, four inches in depth, is cast at an equal distance between the bearing ribs. The suspending ribs are each 18 inches in depth, and $2\frac{5}{8}$ inches in thickness, exclusive of a moulding. The bearing ribs are 15 inches in depth, and $2\frac{1}{2}$ inches in thickness, and each of the ribs are cast in three pieces only, of about 50 feet each; the braces are 5 by 3 inches. The principal king posts are $10\frac{1}{4}$ by $4\frac{1}{2}$ inches. The springing plates are each 3 feet broad, and 3 inches thick, with openings to save metal. The uprights against the abutments are $4\frac{1}{2}$ inches square. The strongest uprights in the railing are 3 inches square, and those between them 1 inch. They are placed 6 inches apart, between middle and middle. The height of the railing above the surface of the roadway, is 4 feet 9 inches. In each spandrel there are three circular arches formed with hard burned bricks, which preserve most of the space open, but they are concealed by iron plates, one inch in thickness, which form the outside facings. On the eastern side of the river, although the banks are not so very high or steep, the quality of the ground being similar to that of the other iron bridge, particular care was bestowed upon the abutments: the space for them was excavated down to the rock, which lay considerably under the bed of the river, and the masonry was sunk into the solid part of the rock. It was built up chiefly of square masonry, and the rest of rubble, laid very close in regular courses, and having the back part formed in the shape of a wedge, pointing to the bank. The wing walls were curved horizontally and vertically. At the height of 10 feet above the low water, there is a hauling path on each side of the river. This bridge, which was completed in 1796, has never Pr shewn any appearance of failure in any of its parts; nothing can be more perfect than the iron work; it is fitted as correctly as a piece of good carpentry.

It has been objected to this structure, that by connecting ribs of different lengths and curvature, they are exposed to different degrees of expansions and contractions. This appears just in theory; and that no discernible effect has hitherto been produced, is probably from the difference being small; but this point will be discussed under the article IRON. Another objection is, an apparent heaviness in the spandrels, from concealing the circular arches with iron plates. For appearance, these spaces had certainly better not been concealed, but they are not liable to the objections made in the former iron bridge, because the space around them is all closely filled up, and the roadway being formed with materials similar to this filling up matter, distributes the pressure very regularly. Upon the whole, considering the strength acquired by placing the covering-plates with their deep flanches, in the form of an arch, we doubt whether a greater degree of strength can be had by any other distribution of the same quantity of cast-iron, viz. $173\frac{1}{2}$ tons: it appears to us, that the upright standards, braces, and king-posts, might be made of smaller dimensions.

We have been informed, that each of these two first iron bridges, including abutments and roadways, cost about L. 6000.

The third iron bridge was constructed over the At S river Wear, near Sunderland, in the county of Dur- land. ham. Its projector was Rowland Burdon, Esq. a gentleman of considerable landed property in that county, and who, for some time, represented it in parliament. The iron work was cast at the founderies of Messrs Walkers of Rotherham, and erected under the inspection of Mr Thomas Wilson. The confidence in the use of iron, for arches of great extent, was by this time established. The span of the second arch, we have seen, is 30 feet more than that of the first; and, in this third instance, the span is 106 feet beyond that of the second, although its rise is only the same as that of the suspending ribs at Buildwas. The arch at Sunderland springs 60 feet above the level of the surface of low water; the span is 236 feet; the rise, or versed sine, is 34 feet; the width of the roadway 32 feet; and there are six Plat ribs. See Plates XCI. and XCIII. XCI. XCII

In this arch, the mode of construction is very different from either of the former. Instead of working with pieces of iron from about 50 to 70 feet in length, each rib is here composed of 125 small frames, each about two feet in the length or curve of the rib, and five deep in the direction of the radius. In each frame there are three pieces of four inches square, which run in the direction of the curve of the arch; and these are connected in the direction of the radius by two other pieces, four by three inches. In each side of the larger pieces, is a groove three inches broad by $\frac{1}{4}$ of an inch in depth; and opposite each cross piece there is a hole in the middle of the groove. When the abutments were brought up, and a scaffolding constructed across the river between them, six of these frames were placed against the abutments in the manner of archstones. Wrought-iron bars, of a length to embrace sundry frames, were then fitted into the grooves. Hollow pipes of cast-iron, four inches in diameter, fitted to reach between each two frames, across the soffit, were introduced. Upon the ends of these pipes are flaunches, in which there are holes, answerable to the holes in the four-inch pieces of the frames, and also to those of the wrought-iron bars. Through these holes, wrought-iron bolts were introduced, which brought all the before-mentioned parts together by means of fore-locks. The frames do not meet at the upright pieces, but on the three points of the four-inch pieces only. On the ends of the hollow pipes, there are small projecting pieces, which embrace the upper and lower edges of the frames opposite each joining. These operations were repeated until the whole of the frames were placed, and the arch keyed, forming six ribs between the abutments. Upon the ribs perpendicular pillars are placed; and between them are cast-iron circles, which come in contact with the extrados, the upright pillars, and the bearers of the roadway. The bearers and covering, we suppose for cheapness, are made of timber. The railing is cast-iron. The inclinations each way upon the arch, probably to save weight, are inconveniently steep.

From its great elevation, and lightness of construction, this bridge is justly esteemed a bold effort of art, and a magnificent feature in the country. The wooden bridges in Switzerland, and that in America, are of greater span; but, being placed near the surface of the water, and from the difference of material, their parts being of larger dimensions, there can be no comparison as to the fineness of effect. This arch is incontrovertible evidence of what may be accomplished by means of cast-iron, since it answers so well, charged, as it is, with the following, we conceive, material defects:

1. The frames are much too short, thereby multiplying, very unnecessarily, the number of joinings in the main ribs to $125\times6=750$; and, in the same ratio, increasing the number of braces, ties, and bolts. The pieces of the frames, being of unequal dimensions, is also improper.

2. The preservation of the due position of the frames is made to depend too much upon wrought-iron bars, and bolts, which should be, as much as possible, excluded from structures of this kind.

3. The circles in the spandrels, placed as supports for the roadway, we have already stated, are improper in a situation where they are not equally pressed around.

We shall observe nothing respecting the timber in the superstructure, because this is mere economy; if properly managed, any bad effects from the difference of expansion and contraction in the two materials, may be easily avoided; and the timber, not interfering with the essential parts, it may, when necessary, be removed, with little interruption to the intercourse over, and none to that under this noble arch. We cannot here resist drawing the attention of our reader to the perfection of this double accommodation, in crossing this deep ravine with facility, while vessels of 200 tons are passing full rigged below.

At Boston.
Plate XCIV.

A cast-iron bridge has lately been built over the river Witham, at Boston, in Lincolnshire, from a design by Mr Rennie. The span is about 85 feet, the rise is about five feet six inches, the breadth is 36 feet, and there are eight ribs, each rib is composed of eleven frames, three feet depth in the direction of the radius. At each joining there is a cast-iron grating across the arch, which connects the frames, on the same principles as ——— practised at Pontcysylte aqueduct. Instead of three pieces in the direction of the curve, as at Sunderland, here there are only two, but they are seven inches by $4\frac{1}{2}$. These are, in each frame, connected in the direction of the radius, by pieces four by three inches. Upon the back of the ribs, pillars, four by three inches, are placed perpendicularly to support the roadway. The superstructure resembles that of the first iron bridge at Coalbrookdale. The arch has been kept very flat, to suit the tide below, and the streets above. The rise being only about $\frac{1}{15}$ of the span, is another proof of the facilities which may be acquired by using cast-iron. The frames being made about four times the length of those at Sunderland, and being connected with cast-iron gratings instead of wrought-iron, are essential improvements; but from the pieces in the frames, which are in the direction of the radius, being only four by three inches, while the main pieces, in the direction of the curve, are 7 by $4\frac{1}{2}$, a great proportion of the former are broken. This is a defect; and the pillars which support the roadway, being perpendicular, do not correspond with the radiated pieces of the frames. The ribs, in springing from the perpendicular face of the masonry of the abutment, have also a crippled appearance.

At Bristol.
Plate XCIV.

In improving the port of Bristol, Mr Jessop found it necessary to change the course of the river Avon, and to make two cast-iron bridges over the new channel. The span of the iron-work of each arch is 100 feet; the rise 12 feet 6 inches, or $\frac{1}{8}$ of the span; the breadth is 30 feet; and there are six ribs; each rib is composed of two pieces meeting in the middle, and they are connected crosswise by nine cast-iron ties, which are dovetailed, and wedged into the ribs; the cross sections of these ties are in this form T. The ribs stand upon abutment-plates, which are laid in the direction of the radius. These plates are 32 feet in length, 2 feet 4 inches in breadth, and 4 inches in thickness; in each plate are five apertures, each 5 feet long and 20 inches in width. The ribs are 2 feet 4 inches in depth in the direction of the radius, and two inches in thickness, and have each 80 apertures, one foot square, separated by bars three inches broad, excepting opposite the cross ties, where the solid is 12 inches broad. Where the ribs meet in the middle, they have flaunches eight inches broad and two thick, and they are connected by cast-iron screw-bolts three inches diameter. Between the ribs and the bearers of the roadway, perpendicular pillars, with cross sections of this form T, are placed. The bearers are of the same form. The whole is covered with cast-iron plates, and there are railings of cast-iron.

Practice.

iron bar, which forms the outer edge of the first, or abutment frames. When this has been done, strong iron bolts are put through eyes in the forks, and the aforesaid second portion of the frame-work is suffered to descend to its intended position, by means of the suspending chain bars, until it closes with the end of the previously fixed frame, like a rule joint. Admitting the first frames were firmly fixed, and that the hinge part of this joint is sufficiently strong, and the joint itself 20 feet deep, I conceive, that even without the aid of the suspending bars, that this second portion of the centering would be supported; but we will, for a moment, suppose, that it is to be wholly suspended. It is known, by experiment, that a bar of good malleable iron, one inch square, will suspend 80,000lbs. and that the powers of suspension are as the sections; consequently, a bar 1½ inches square, will suspend 180,000lbs.; but the whole weight of this portion of the rib, including the weight of the suspending bar, is only about 30,000lbs. or one-sixth of the weight that might safely be suspended; and as I propose two suspending chain-bars to each portion of rib, if they had the whole to support, they would only be exerting about one-twelfth of their power; and considering the proportion of the weight which rests upon the abutments, they are equal also to support all the iron work of the bridge, and be still far within their power.

" Having thus provided for the second portion of the centering, a degree of security far beyond what can be required, similar operations are carried on from each abutment until the parts are joined in the middle, and form a complete centering; and being then braced together, and covered with planking where necessary, the whole becomes one general platform, or wooden bridge, to receive the iron work.

" It is, I presume, needless to observe, that upon such a centering or platform, the iron work, which, it is understood, has been previously fitted, can be put together with the utmost correctness and facility; the communication from the shores to the centre will be through the before-mentioned passages in the masonry. The form of the iron work of the main ribs will be seen, by the drawing, to compose a system of triangles, preserving the principal points of bearing in the direction of the radius. It is proposed in the breadth of the bridge (*i. e.* 40 feet) to have nine ribs, each cast in 23 pieces, and these connected by a cross grated plate, nearly in the same manner as in the great aqueduct of Pontcysylte, over the valley of the Dee, near Llangollen. The fixation of the several ribs in a vertical plane, appearing (after the abutments) to be the most important object in iron bridges, I propose to accomplish this by covering the several parts or ribs, as they are progressively fixed, with grated or reticulated and flaunched plates across the top of the ribs. This would keep the tops of the ribs immoveable, and convert the whole breadth of the bridge into one frame. Besides thus securing the top, I propose also having cross braces near the bottom of the ribs.

" The ribs being thus fixed, covered, and connected together, the great feature of the bridge is completed. And as, from accurate experiments made and communicated to me by my friend, the late William Reynolds of Coalbrookdale, it requires 448,000lbs. to crush a cube of one quarter of an inch of cast iron, of the quality named gun-metal, it is clear, while the ribs are kept in their true position, that the strength provided is more than ample.

" When advanced thus far, I propose, though not to remove, yet to ease the timber centering by having the feet of the centering ribs (which are supported by offsets in the masonry of the front of the abutment,) placed upon proper wedges; the rest of the centering to be eased at the same time by means of the chain bars. Thus the hitherto dangerous operation of striking the centering, will be rendered gradual and perfectly safe; inasmuch that this new mode of suspending centering, instead of supporting it from below, may perhaps hereafter be adopted as an improvement. Although the span of the arch is unusually great, yet by using iron as a material, the weight upon the centre, when compared with large stone arches, is very small. Taking the mere ring of archstones in the centre arch of Blackfriars bridge, at 156 × 43 × 5, equal to 33,450 cubic feet of stone, it amounts to 2,236 tons; whereas the whole of the iron work, in the main ribs, cross plates, and ties, and grated covering plates, that is to say, all that is lying on the centering at the time it is to be eased, weighs only 1791 tons. It is true, that from the flatness of the iron arch, if left unguarded, a great proportion of this weight would rest upon the centering; but this is counterbalanced by the operation of the iron ties in the abutments, and wholly commanded by the suspending chain bars.

" When the main ribs have been completed, the next step is to proceed with the iron supporters of the roadway; and these, instead of being constructed in the form of circles, or that of perpendicular pillars, as hitherto, are here a series of triangles, thus including the true line of bearing. These triangles are, of course, preserved in a vertical plane by cross ties and braces. Iron bearers are supported by these triangles, and upon the bearers are laid the covering plates under the roadway, which, instead of being solid, are, (in order to lessen the weight,) proposed to be reticulated.

" If I have, throughout this very succinct description, made myself understood, it will, I think, be admitted, that the constructing a single arch across the Menai, is not only a very practicable, but a very simple operation; and that it is rendered so, chiefly by adopting the mode of working from each abutment, without at all interfering with the tideway.

" In the case of the Swilley bridge, although the arches are smaller, yet being placed on piers, situated on rocks, surrounded by a rapid tide, the inconvenience of carrying materials, and working, is greatly increased; and supposing the bridge part constructed, an enormous expence has still to be incurred before the roadway can be carried over the flat ground on the Anglesea shore. Therefore, whether œconomy, facility of performance, magnificence, or durability be consulted, the bridge of one arch is, in my opinion, infinitely preferable; and it is no less so, if considered in what regards the navigation."

This mode of constructing centres, applicable to stone as well as iron arches, being an original idea, and perfectly simple, and the effects of all its operations being more capable of correct demonstration than those of the former mode of supporting from below, we were glad of being enabled, while this article was in the press, to communicate the outlines of the scheme, as given by the engineer in his report to the Lords of the treasury. If this should be successfully practised on so large a scale at the Menai, all difficulties with regard to carrying bridges over inaccessible ravines or turbulent streams, will, in future, be done away, and a new æra formed in bridge building.

We have only given a Plate of the centering, because the construction of the iron work is precisely the same in principle (though on a larger scale) as what has been adopted by the same engineer in Bonar bridge. See Plate C.

We have now given our readers a distinct view of the progress of the practice of constructing bridges with cast iron, as far as it has hitherto been carried. We are well convinced that much more will still be accomplished; and when we come under the article Iron, to treat generally of its qualities and different modes of application, some light will be thrown upon the subject, which we expect will tend still further to enhance its importance in the great practical purposes of life.

Although it is trusted the reader will, in this article, have found bridge building as fully discussed as he could expect in a work of this nature, yet if disposed to prosecute the subject more at length, he will be enabled to do so by consulting the following able authors, who have written on the subject either generally, or in describing particular works.

It is rather surprising, that although the Romans had, before the time of Vitruvius, introduced the use of the arch, not only in bridges and aqueducts, but in theatres and temples, yet he has not been led to discuss, or even particularly to notice this principal feature in Roman architecture.

Leoni Baptisti Alberti first wrote upon bridges in 1481. Palladio followed about a century afterwards. Serlio and Scammozzi also treated the subject, and the latter gives useful rules respecting foundations. See also Ferrari on Arches, in the *Act. Sienn.* vi. 143.

Blondel has described the bridge which he built in 1665, in the tideway upon the Charante at Xaintes. Gautier, in 1714, published a treatise expressly upon bridge building, systematically arranged, and containing much useful practical information. Perronet, in 1768, published an elaborate work, containing very minute details of the progress in building some of the principal bridges in France, and also valuable information respecting materials, foundations, centres, arches, scaffolding, and machinery. Regemotte gives an account of a bridge of 13 large arches, built by him on the Allier at Moulins. Cessart, in his *Travaux Hydrauliques*, gives an account of the bridge of Saumur of 12 large arches, upon the Loire. Belidor, in the 4th vol. of his *Archit. Hydraul.*, treats of bridges. Parent, De la Hire, and Bossut, treat the subject scientifically. See also Abeille *Mem. Acad. Par.* i. 159. Sebastien, *Do.* i. 163. De la Hire, *Do.* 1702, 1712. Senes, *Do.* 1719, 363. Couplet, *Do.* 1729, 1730. Chardon, *Do.* 1731. Bouguer, *Do.* 1734. Bossut, *Do.* 1774, 534; 1776, 587. Coulomb, *Mem. des Savans Etrangers*, 1773, 343. Giral, *Sur les constructions des ponts*, 4to. Trembley in Rozier's *Observations*, tom. xxxiii. p. 132. Montpetit in Rozier's *Observ.* tom. xxxii. p. 430.

Practice.

In France.

Æpinus wrote on the abutments of arches in the *Mem. Acad. Berl.* 1755, p. 386.; and Euler on the method of judging of the strength of a bridge from a model in the *Nov. Comment. Petrop.* tom. xx. p. 271. See also Lorgna on the Curve of an Arch, in the *Acta Petrop.* III. ii. 156.

In Prussia and Russia.

Labelye published a short report respecting Westminster bridge. Goldman and Hawksmoor also treated on the subject of bridges. Semple published a detailed account of the mode of conducting the building of Essex bridge in Dublin. He also treats of building in water. Dr Hook, Emerson, and Muller, have discussed the principles of arches scientifically. Dr Hutton, in a separate treatise, and also in his Dictionary, treats of the principles of bridges; and his valuable works contain many useful remarks and directions respecting those edifices. The late Mr Atwood published an essay upon the principles of arches, in two parts, in which much science and originality of mind are displayed. See likewise Robinson in the *Phil. Trans.* 1684, vol. xiv. p. 583. Robertson *on the fall of water under bridges*, in the *Phil. Trans.* 1758, p. 492.; and Dr Thomas Young's *Natural Philosophy*, vol. ii. p. 175, &c. (γ)

In England.

☞ For this valuable and original article on the theory and practice of Bridge-building, which is the only complete treatise on the subject that has yet been published, the Editor is indebted to Thomas Telford, F.R.S.E., civil engineer, and to Alexander Nimmo, F.R.S.E.

BRIDGEND, a town of South Wales, in the county of Glamorgan, situated on both sides of the river Ogmore, over which there is a good stone bridge. The town, which consists of a street on each side of the river, is tolerably well built, and is divided into three parts, called New Castle, Old Castle, and Bridgend, the two first deriving their names from two castles, the remains of which are still visible. The town-hall is a neat building, the market-place is very commodious, and the parish church is well built, and commands a fine prospect. The soil of the adjacent country is fertile, and in a state of good cultivation; and great quantities of salmon, sewin, trout, and flat fish, are caught in the river. The chief trades carried on in the town are tanning and tallow chandlery, and a large woollen manufactory has been established by the agricultural society of the county. Woollen cloths and blankets are manufactured by means of

Bridgend.

machinery, and sent to Witney, where they are sold as manufactured in that place. There are here two annual fairs, and a good weekly market on Saturday. Some accounts state the population of this town at 7140, and the number of houses at 1688; while others make the population only 1701, the number of houses 386, and the number of persons engaged in trade at 200. The last statement we suppose to be the most correct. See Malkin's *Tour in South Wales* in 1804. (π)

BRIDGENORTH, a borough and market town in England, is romantically situated upon the river Severn, in the county of Salop, and hundred of Stoddesdon, 22 miles south-east from Shrewsbury, and 140 north-west from London. The river divides it into the upper and lower town, which are united by an old inconvenient bridge of seven arches, which having been frequently injured by the floods, is now rebuilding, from a fund accumulated by a toll collected under an act of parliament obtained several years ago. The upper town stands upon the top and sides of a hill composed of red sandstone. It consists chiefly of two streets, which are wide, well paved, and would be very commodious if the town-hall (which occupies the middle of the high street) was removed. From these principal streets, several others, that are narrow and steep, branch off, and pass down to the river. The entrance from the south was formerly by one of these, but being intolerably inconvenient and dangerous, a new and more commodious entrance has been formed round the south-western base of the castle hill. The expence of this was defrayed by a toll. Many of the communications down the face of the bank next the river, are by means of successive flights of steps. A great number of houses are excavated entirely out of the sandstone rock, so that it is not uncommon to see the smoke rising in the middle of little hanging gardens, where nothing but the stalk of a chimney appears. The town walls, of which the northern gate only remains, was built by Roger de Belesme, Earl of Shrewsbury, who also fortified this place with a strong castle, and here, with a few desperate associates, made a stand against the forces of his sovereign Henry I., but was soon compelled to relinquish it and fly to Normandy. This castle is now almost entirely demolished. One of the square towers, however, which is still standing, is an object of great curiosity, having been partly undermined during the civil wars between the king and the parliament: it now leans out of a perpendicular 21 feet in the height of 70 feet. Within the precincts of the castle, upon the scite of an old chapel dedicated to St Mary Magdalene, a magnificent new church has lately been erected, from a design and under the direction of Mr Telford. It was finished in 1796. The length is 121 feet, breadth 77; height of the tower 114 feet; the height of the Tuscan order which surrounds the whole church is 36 feet 6 inches. Internally, sixteen Ionic columns reaching to the cieling, divide and support the body or cell. Neither externally nor internally is there a single ornament, excepting the essential parts of these orders. Near the north end of the town, in the highest part of the hill, stands the church of St Leonard, an old imperfect edifice. On the west side of the river are the remains of an ancient and magnificent convent, under which there are several remarkable vaults running to a great length. There is here a free school for the sons of the burgesses, which also sends and maintains eighteen scholars at the university of Oxford. Bridgenorth is governed by two bailiffs, annually elected out of 24 aldermen, who must have gone through all the offices of the borough, 48 common council men, a town clerk, and recorder. It returns two members to parliament, which privilege was granted by Edward I., and is vested in the corporation and freemen, amounting nearly to 1700. The manufactures carried on here are building barges, which navigate the Severn; tanning leather; making carpets, which has been carried to a very considerable length by Messrs Macmichaels; as also a cast iron foundery, established in the same town by Messrs Allen and Hasledine. Cloth, stockings, and some ironmongery goods, are also made here. The trade is considerable, being a market for a great extent of rich country, and carrying on, by means of its barges, a considerable intercourse with the other towns upon the river Severn. The market is on Saturday; and its fairs, which are on Thursday before Shrovetide, March 14, May 1, June 30, Aug. 2, and October 29, are resorted to from most parts of the kingdom for cattle, sheep, butter, cheese, bacon, and hops. The last, which continues three days, is a very considerable mart for horses, especially two year old colts of the draught kind, and for weanling calves. This town consists of two parishes, St Leonards and St Mary Magdalene, containing in 1801, 910 houses, and 4319 inhabitants, of whom 3800 are employed in trade and manufactures.

The inhabitants are well supplied with water from a spring about half a mile from the town, whence it is conveyed by means of pipes. Water is also raised from the river by a water wheel, up to a reservoir on the edge of the castlehill. Near this reservoir a walk is made round the castle, which forms one of the finest terraces in England. The views from it, particularly up the river to the bold and richly wooded banks at Apley, are not to be surpassed. It is situated in W. Long. 2° 30′, N. Lat. 52° 38′. See Buck's *Antiq.* and Plymley's *Survey of Shropshire.* (L)

BRIDGETOWN, the capital of Barbadoes, lies in the south-west part of the island, in the parish of St Michael, and in the innermost part of Carlisle Bay. Its situation was originally chosen entirely on account of its convenience for trade, without any regard to the health of its inhabitants. It is surrounded with low flat grounds, which being often overflowed by the spring tides, rendered it very insalubrious; but which being now drained, it is reckoned as healthy as any place in the island. This town was formerly the most elegant and largest in all the Caribbee islands, but it has suffered greatly, both from fire and hurricanes. (See BARBADOES, vol. iii. p. 254.) It is, however, again recovering its former appearance, and affords most of the conveniences, either for entertainment or amusement, which are to be found in any city of Europe. The streets are broad, the houses lofty and well built, and many of them rent as high as those in London. The church of St Michael is a large and beautiful building, exceeding many of our English cathedrals. It has a curious clock, an excellent organ, and a peal of bells. Bridgetown has also a hospital and a college, founded and liberally endowed by Col. Codrington, for maintaining professors and scholars to teach and study divinity, surgery, and physic. It is the only institution of the kind in the West Indies; but its success has not answered the designs of its founder. About a mile from the town stands the governor's country seat, called *Pilgrims*, which is a handsome villa built by the assembly. This town enjoys perfect security against foreign invasion, from the strength of its forts, and the boldness of the coast. It is defended on the west by St James' fort, mounting 18 guns; Willoughby's fort, which is built upon a tongue of land running into the sea, and mounts 12 guns; Needham fort, mounting 20 guns; and St Anne's fort, which is the strongest in the island, and stands near within land. On the east it has steep cliffs, high rocks, and foul ground. Carlisle Bay is formed by Needham and Pelican points, and is capable of containing 500 vessels, being about 4 miles long, and 3 broad, but the bottom is foul and injurious to cables. The harbour is one of the best in the West Indies, and is completely secured from the north-east wind, which is the constant trade-wind in Barbadoes. The wharfs are large and commodious for loading and unloading goods; and monthly packet boats have lately been established here for carrying letters to and from Great Britain. Bridgetown is the seat of the governor, council, assembly, and court of chancery; and its militia, with that of the parish of St Michael, amount to 1200 men, who are called the royal regiment of foot guards. North Lat. 13° 9′ 30″, West Long. 60° 2′ 30″. (L)

BRIDGEWATER, a borough and market-town in England, in the hundred of North Petherton, and county of Somerset, is situated in a flat, and rather woody country, on the river Parrot, 12 miles from the sea, and nearly 128 west from London. Over the Parrot is a stone bridge, which connects Bridgewater with the suburb of Eastover; and also an iron bridge lately erected. The streets are very irregular, but wide and well built; and the church of St Mary is a large and handsome building, with one of the largest spires in the kingdom. It has a spacious town-hall, and a high cross, with a cistern over it, to which water is conveyed by an engine from a neighbouring rivulet, and thence carried to the different streets. It has also several meeting-houses for Presbyterians, Baptists, and Quakers; and, it is worthy of notice, that in one of these there is a pew appropriated for the mayor and aldermen, should they happen to be of that persuasion. Bridgewater was formerly the private estate of William de Brewere, but was erected into a free borough by King John, and afterwards made a mayor-town by Henry IV. Its corporation consists of a mayor, a recorder, two aldermen, 24 common-council men, and a town clerk; and it sends two members to parliament, who are chosen by the inhabitant householders, who pay *scot* and *lot*. The authority of the magistrates extends throughout the parish; and the recorder, with the mayor and aldermen, are empowered to hold four sessions annually, for trying all crimes and misdemeanors, not capital, committed within their jurisdiction. A court of record is also held every Monday, for the cognizance of all debts. The midsummer county sessions are held at Bridgewater, and the assizes every other year. As this town was made a distinct county by Henry VIII. the sheriff of Somerset cannot send any process into the borough; and its burgesses are free in every town of England and Ireland, except London and Dublin. The revenue is valued at L. 5000 per annum; and the corporation are conservators of the navigation of the river Parrot, which is navigable at Bridgewater for vessels of 200 tons, and for large barges as far as Taunton and Langport. Bridgewater has very little foreign trade, but a great deal of coasting. A large and commodious quay receives the manufactures of Manchester, Liverpool, Birmingham, &c. which are conveyed by waggons to the internal parts of Devon and Cornwall; and about forty vessels from 30 to 100 tons are employed at this port for bringing coals from Wales; by which means, the neighbourhood are supplied with this article at a moderate rate. The duties paid on imports amount to about L. 2500 a year; and the duty on coal alone, for seven years, was estimated at L. 16,000 or L. 17,000. Its fairs, of which there are four in the year, are well supplied with cattle, horses, and sheep; and also with cloths and linen. Its markets are on Thursday and Saturday. The tide rises here six fathoms at high water, and sometimes flows with such impetuosity, that it rises at once nearly two fathoms. This sudden flow, from its impetuosity and noise, is called the *boar*. It is frequent in all the rivers of the Channel, particularly in the Severn, and often occasions considerable damage to the shipping, by driving them foul of each other, and upsetting the small craft. Bridgewater was formerly a place of much greater importance than it is at present. It was regularly fortified during the civil wars, and protected by a castle, but since that time it has suffered greatly from conflagrations, and the various vicissitudes of war. In 1645, it was besieged by the parliament army under Sir Thomas Fairfax, who committed great devastations; and it was here that the duke of Monmouth encamped his undisciplined army previous to his defeat on Sedgemoor. Population, 3634; of whom 986 are engaged in trade and manufactures. W. Long. 2° 59′, N. Lat. 51° 7′. (*p*)

Bridle.

BRIDLE, an essential part of the trappings of a horse, for controuling its head, and regulating its motions.

The bridle first known was certainly nothing more than a simple thong, or cord fastened about the head or neck of the horse, like our common halter: all the parts which now compose it have been adopted at different periods. In some countries it is still very little more than a thong; for the laziest and most unwieldy of quadrupeds, the elephant, is guided by nothing but a cord around the neck, while his rider impels him forward by a goad. Buffaloes also, and oxen trained to labour, are, in some of the warmer countries, bridled by a cord passing through the cartilage of the nose.

Though the ancients guided their horses by reins, Bridle, Bridlington.

it has been questioned by Fabretti, Montfaucon, and others, whether they were acquainted with the curb, and particularly the bit presently in use; and, trusting to sculptures where the equestrian is represented in the act of leading his horse, certainly nothing like a bit appears. But it has been contended, on the other hand, that the *fræna lupatá* spoken of in the classics consisted of a bit with jagged teeth. The bit, however, is not to be considered a modern invention, though there are several countries where it is yet unknown.

The bridle at present consists of the reins, bit, and curb, to which chains are sometimes added; and all these are supposed to have properties according to the various form and dimensions of which they are constructed. Of late the reins of riding, and some carriage-horses, were made of leather rounded into the form of a cord, by which equal strength, and greater convenience, are preserved. The bit, which combined with the reins, is so efficacious in controlling a horse, is flexible or inflexible, jointed, curved, or provided with rollers, and its side-pieces are long, short, bent, or straight at pleasure, and according to the restraint they are to produce; and are called the *Hessian*, *Pelham*, or *Weymouth* bits. The curb consists of a chain composed of links, which, it has been attempted to demonstrate, should be long. In treating of this subject, a modern author thus expresses his opinion: "If any panacea or universal medicine is known, the snaffle is one for the mouth of horses; it suits and accommodates itself to all; either finding them good, or speedily making them so. The mouth once made, will always be faithful to the hand, act with what agent it will. This bridle can at once subject the horse to great restraints, or indulge him in ease and freedom. It can place the head exactly as the horseman chuses to have it; and can work and bend the neck and shoulders to what degree he may find expedient."

In European countries, the bridle is generally plain, and of a strength and weight proportioned to the service to be performed, and the nature of the animal on which it is employed. But among the eastern nations it is often richly ornamented, and is sometimes studded with the most precious jewels.

In considering all that has been said on the various properties of reins, curbs, and bits of different fashions, it appears that so much attention bestowed on bridles might be avoided by a judicious mode of training horses. Every animal, almost without exception, may be rendered docile by mild and suitable treatment. Were horses, from the earliest period, constantly familiarized with mankind, their tractability, instead of being the result of cruel and coercive measures, would increase as they became fit for use. The necessity, therefore, for the reins, bits, and curbs, which are chiefly adapted to the unsubdued animal, would daily diminish. It cannot be overlooked, that the Tartars, who constitute the first equestrians in the world as a nation, guide and restrain their horses more by the motion of the knees than the influence of the bridle; and it is a leading characteristic of all Orientals to ride with a slack rein. See HORSEMANSHIP. (*c*)

BRIDLINGTON, a market and seaport-town in the East Riding of Yorkshire. The town is situated about a mile and a quarter from the harbour, which is called Bridlington-quay. This harbour, which has lately been much improved, is very safe and commodious, and is protected from the north-west and north-east winds by two strong piers, which run out obliquely into the sea, and form an agreeable promenade. Several good trading vessels belong to the port; and the inhabitants are principally seamen and fishermen. The town itself is small and neat, but irregularly built, and the houses are in general old. The church was once a noble building; but the two towers at the west end are destroyed, the nave only being left for divine service. The mineral waters of this place are held in great estimation; and, within these few years in particular, it has become a place of resort for sea-bathing. Horned-cattle, toys, linen and woollen cloths, are the articles disposed of at the fair of this town. Number of houses, 687. Population, 3130; of whom 1031 were returned as employed in trade and manufactures. See *The Guide to the Watering-places*, 1806. (*w*).

BRIDPORT, a borough and market town in Dorsetshire, is situated in a vale surrounded by hills, between two branches of the river Brit, about one mile north from Bridport Bay, and 135 south-west from London. This town has a very respectable appearance, and consists of three spacious streets, having many substantial houses, both of brick and stone. A handsome market-house stands in the centre, and near it the church of St Mary, which is a large ancient building, in the form of a cross, adorned with pinnacles and battlements, and a tower in the middle 72 feet high. It had once a priory, which stood near the bridge, and several religious foundations; but no traces of them are now to be seen. It has, however, a charity-school and three alms-houses. Bridport is a great thoroughfare to the west of England, and its inhabitants are chiefly employed in the manufacture of small cordage, nets, and sailcloth; the greater part of which is consumed in the British and Newfoundland fisheries; and it has been computed, that nearly 1500 tons of hemp and flax are here annually converted into these articles. Indeed this manufacture was formerly so flourishing, that it was enacted, in the reign of Henry VIII. that all the cordage used in the English navy should be made at, or within five miles of Bridport; and this act continued in force for nearly 60 years. Its harbour, which is situated very conveniently for trade, at the mouth of the river Brit, about a mile south from the town, has long been choked up with sand; but of late, has been so far recovered as to admit a few vessels not exceeding 200 tons burthen. It does not appear, however, that this town was ever of any consequence in maritime affairs; and though many attempts have been made to make it a port, yet they have all proved ineffectual. Many excellent vessels are built at Bridport, particularly smacks, with which most of the trading companies in Scotland are supplied. It has two market days, Wednesday and Saturday, and three annual fairs. It returns two members to parliament; and contains 287 houses, and 3117 inhabitants, of whom 3006 are employed in trade and manufactures. N. Lat. 50° 41′ 13″, W. Long. 2° 50′ 59″. (L)

BRIEG, the **Brega** of the ancients, a city of Silesia, and capital of the principality of the same name, is situated on the left bank of the Oder, over which there is a good bridge. After the capture of this city by the king of Prussia, in 1741, this monarch repaired the damage which it sustained in the siege, increased the fortifications, and built a new suburb. The houses are, in general, well built, and the principal public edifices are, the Lutheran College, an Academy where the nobles learn different exercises, the arsenal, and several Roman Catholic and Protestant churches. There is here a manufacture of fine cloth, and a great deal of spinning has been carried on both in the town and neighbourhood, since the year 1728, when Brieg obtained permission from the Emperor to hold two fairs annually for the sale of wool. A considerable trade in the wines of Austria and Hungary is carried on by the merchants of this place. To the north of the town, in a spacious meadow intersected by a broad dike, paved with stones, there are held three fairs every year, where many thousands of cattle from Poland and Hungary are brought for sale. In the neighbourhood of Brieg there are several iron foundries. Corn, madder, and tobacco, are produced in the principality, which is about 36 miles long, and from 8 to 21 broad. East Long. 17° 38′, North Lat. 50° 48′. (w)

BRIEL, or **Brill**, a maritime city of the United Provinces, and capital of the island of Voorn, is situated near the embouchure of the Meuse, with which it communicates by means of a large and commodious harbour. It holds the fifth rank among the cities of Holland, and is famous for being the place where the confederates of the United Provinces first established their independence. Being driven from the Low Countries by the duke of Alva, and on account of the representations of the Spanish ambassador to queen Elizabeth, denied admission into England, these desperate exiles were forced to attempt the most perilous enterprises. Sailing towards Enckhuysen, in 1572, they were driven by unfavourable winds to the island of Voorn, when they assaulted and took the city of Briel, which they fortified, and made the first asylum of their liberty. The inhabitants of the surrounding country immediately flocked to their standard, and in a few days, the provinces of Holland and Zealand had revolted from the Spaniards. When the states of Holland concluded a treaty with queen Elizabeth in 1585, Briel was one of the cautionary towns delivered to the English for securing the fulfilment of their engagements; and it continued to be garrisoned by English troops until 1616, when it was restored to the states. This city is also noted for being the birth place of the celebrated Martin Harpertz Tromp, admiral of Holland, who was killed in an engagement with the English fleet under Admiral Blake, off the Texel, on the 8th of August, 1653. It is 5½ leagues from Rotterdam, and 4½ from Delft. N. Lat. 51° 53′, E. Long. 4°. (*p*)

Briggs.

BRIGGS, Henry, a celebrated mathematician, was born in 1556, at Warley wood, near Halifax, in the West-riding of Yorkshire. At the age of 23 he left the grammar school, and went to St John's College, Cambridge. In 1581 he took his degree of Bachelor of Arts, and three years afterwards, that of Master; and in 1588 he was chosen a Fellow of that College. His passion for mathematical learning had already displayed itself in the progress of his studies, and such was the fame which he had acquired in this department, that in 1592 he was appointed examiner and lecturer in the mathematics; and he was soon after chosen reader of the physic lectures, founded by Dr Linacre. Upon the establishment of Gresham College in London, Briggs was, in 1596, elected the first Professor of Geometry; and in this new situation he drew up a table for determining the latitude of the place from the variation of the magnet. This table was published by Dr Gilbert, in his book *De Magnete*, and also by Thomas Blundeville, in his *Theoriques of the Seven Planets*, a work which appeared in London in 1602. In the year 1609, he became acquainted with Mr James Usher, afterwards Archbishop of Armagh, with whom he carried on a correspondence for many years, and two of these letters are to be found in the published collection of Usher's letters.*

About this time, in 1614, our countryman Lord Napier, published his *Mirifici Logarithmorum canonis descriptio*, containing an account of the discovery of logarithms. This work attracted the particular notice of Briggs, who appears to have perceived at an early period, the advantages of that change in the system of Napier, which was afterwards adopted. In the system invented by Napier, the logarithms of a series of numbers, increasing in the decuple ratio of 1, 10, 100, formed a decreasing arithmetical series, in which the common difference of the terms was 2.3205851. Briggs, however, considered, that it would be more conformable to the decimal notation to adopt a system in which 1 should be the logarithm of the ratio of 10 to 1. This alteration in the scale of logarithms, was explained by Briggs in his lectures at Gresham College; and he also communicated it by letter to Lord Napier. Not satisfied with an epistolary correspondence, Briggs went to Scotland in 1616, for the express purpose of explaining to Napier the plan which he had formed. During their conversations on this subject, Napier observed, that the same plan had formerly occurred to him after he had calculated the logarithms according to his own system, and that he merely gave these to the world till his health and leisure should permit him to accommodate them to the new system. It was proposed by Briggs to make the logarithms of the sines increase from 0, the logarithm of radius to infinity, while the sines themselves should decrease; but Napier observes that it would be preferable to make them increase, so that 0 should be the logarithm of 1, and that 100000 should be the logarithm of radius. This suggestion met with the approbation of Briggs, who accommobenefited by the presence of the emperor Frederick, who made it a principal place of rendezvous to his armaments for the Holy Land; but by the loss of Jerusalem, the fall of the Greek empire, the conquest of the east by the Turks, and the consequent ruin of the trade of the Levant, the town of Brindisi lost all its importance, and was reduced to a state of desolation, from which it has never recovered.

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* In one of these letters, dated 1615, he says, "Napier, lord of Merchiston, hath set my head and hands at work, with his new and admirable logarithms. I hope to see him this summer, if it please God, for I never saw a book which pleased me better." Usher's *Letters*, p. 36.

Of ancient Brundusium little now remains but the column of the light-house; a large marble bason, into which the water flows from brazen heads of deer; numbers of broken pillars, which have been removed from their former stations to the corners of the streets, to protect the houses from the wheels of carts; frequent fragments of coarse mosaic, which had composed the floors of ancient habitations; inscriptions, coins, ruins of aqueducts, and a few other similar vestiges of antiquity.

Of the present city of Brindisi, the walls still include a large space; but the inhabited houses do not occupy half the inclosure. The streets are crooked and badly paved; the buildings mean and ruinous in their appearance; and none of the public edifices in any respect remarkable. The only structures at all deserving of notice, are the cathedral, built by king Roger, and dedicated to St Theodore; the citadel, a large and stately building, erected by the emperor Frederick II. to defend the northern branch of the harbour, and repaired by Charles V.; and the walls of a palace, near the port, built by Walter de Brienne, of gray stone, divided, at regular distances, by broad courses of black marble, but the greater part of which has been pulled down, to supply materials for the new canal at the entrance of the inner harbour.

But the most remarkable object in Brindisi is its double harbour, which has a very peculiar appearance, and is reckoned the finest in the Adriatic. Two promontories stretching out gradually as they advance into the sea, form the outer port, which is protected from the fury of the waves, by the island of St Andrew lying between the capes, and which thus presents a large triangular space, in which vessels of considerable burden may safely ride at anchor. At the bottom of this bay, where the two promontories unite to form an angle, is a narrow channel, admitting the water into the inner port, which extends itself on each side in the shape of a semicircle, embracing the city like two arms, bearing some resemblance to a stag's head and horns. From this appearance, the name Brundusium is supposed to have originated, which is said to be an old Massapian word, signifying the head of a deer. This harbour is conjectured to have been produced by the sinking of the ground, in consequence of an earthquake, as the hills around it are upon an exact level, and exhibit parallel correspondent strata. It extends two miles and a half in length, and is twelve hundred feet broad at the widest part. It has a great depth of water, is sheltered by the hills and the town on every side, and is excellently adapted for every purpose of navigation and trade. The communication between the two havens, was formerly marked out by means of lights, placed upon columns of the Corinthian order, erected on a rising ground in a direct line with the channel. Only one of these, of a green and white marble, remains entire upon its pedestal. Its capital is adorned with figures of syrens and tritons, intermingled with the acanthus leaf; and upon the summit is a circular vase, which formerly contained the fire. The soil in the neighbourhood of the town is light and good, and produces excellent cotton, of which the inhabitants manufacture stockings and gloves. The position of the place is centrical, and in the whole kingdom of Naples a finer situation for trade is not to be found. But, by one fatal circumstance, the obstruction of the channel, which unites the outer and inner havens, this unhappy city was deprived of all its natural advantages, and desolated by the most afflicting evils. Its ruin may be said to have been begun by Julius Cæsar, when, in order to block up the fleet of Pompey, he drove piles, and threw heaps of rubbish into the space of communication. In the fifteenth century the prince of Taranto caused several ships to be sunk in the middle of the passage, to prevent the royalists from entering the port, and thus provided a resting place for the sand and sea-weed, which soon accumulated to such a degree, as to render the entrance impassible to vessels of every description. In 1752, the bank had increased so much, that, except in rainy seasons, and during violent easterly winds, even the waves were completely excluded; and, from that period, the inner port became a green fetid lake, full of noxious insects, and infectious effluviæ; so that no fish could live in it but eels, and no boat ply upon its surface but the smallest canoes. The low grounds at each end were converted into stagnant marshes, the vapours of which created every summer an actual pestilence, which, in the course of a few years, destroyed or drove away the greatest part of the inhabitants, so that from 18,000 they were reduced, in 1766, to 5000 miserable looking creatures, tormented with agues and fevers; and of this number not less than 1500 were carried to their graves during the autumn of 1775, in a climate, which, 30 years before, was esteemed so salubrious and balsamic, that the convents in Naples were accustomed to send their consumptive friars to Brindisi for the restoration of their health. In this state of wretchedness the remaining citizens applied for relief to Don Carlo Demarco, one of the king's ministers, who was himself a native of Brindisi; and, in consequence of this representation, Don Andrea Pigonati, an able engineer, was sent with plans and instructions for the improvement of the harbour. The marshes, at each extremity of the inner port, have been filled up with earth, and a dam constructed to prevent the water from returning upon those low grounds. The channel has been cleared so far, as to form a canal with a depth of two fathoms of water, capable of admitting pretty large boats, and to afford a free passage to the sea, which now rushes in and out at every tide with great impetuosity, giving motion to the water of the inner harbour, which is thus again rendered pure and wholesome. In clearing this opening, several seals and medals were found by the workmen; and many of the oak piles which had been driven in by Cæsar, and which had remained above eighteen centuries seven feet under the sand, were drawn up in as fresh a state as if they had been cut only a month before.

The canal or gut is designed to extend in a strait line seven hundred yards; and, if the plan were accomplished, a harbour will be formed, completely landlocked, capable of containing a whole navy, and of admitting vessels of the greatest burden. But apprehensions are entertained, whether the work can be properly secured against accidents, and kept in a sufficient state of repair, without a considerable annual expence; and great difficulty has been experienced in rendering the piers strong enough to resist the violence of the sea, and preventing the reaccumulation of the sand by the tides. By these operations, however, a return of health, and a prospect of commercial prosperity, have been already opened to the citizens of Brindisi; who have resolved, in gratitude for so great blessings, to erect a statue to the king, with inscriptions upon its pedestal to the minister and his agents.

Since this town was visited by Mr Swinburne, these improvements have been carrying on under the direction of Don Carlo Pollio, an able engineer. In removing the earth from one of the banks, for the purpose of covering the marshy grounds, the workmen discovered the foundation of a house, which appeared to have been inhabited by a Roman. The distribution of the apartments, level with the ground, the canal for the bath, and the bed-chamber, with mosaic work, and the motto of *bene dormio*, I sleep well, were distinctly seen. Among the rubbish there were also found the statue of a woman, and two heads of ancient philosophers.

Beside the causes which we have already assigned for the ruin of Brindisi, there is another which is deserving of notice. During the long war which the Venetians waged against the Turks, a fleet of the republic was always stationed in the port of this city. The Venetians admired the wines which were made in the adjacent country, and paid a high price for them. The avarice of the inhabitants, however, was greater than their prudence; they tore up all their olive trees, and replaced them with vines, in order to supply a demand which they never seem to have regarded as temporary. But when the Venetians left Brindisi, the produce of the vineyards could not find a market, while oil was not to be had. Population 2042.* East Long. 17° 40′, North Lat. 40° 48′. See Swinburne's *Travels in the two Sicilies*, vol. i. p. 383.; Stolberg's *Travels in Germany, Switzerland, Italy, and Sicily*, 1791, 1792; and *Annales des Voyages*, &c. *par* Malthe Brun, tom. iii. p. 209. (*q*)

BRINDLEY, James, was one of the small number of unlettered and uneducated men, who, sustained solely by the powers of their own minds, have used them with such wisdom and success, as to acquire not merely parochial or provincial celebrity, but to attract the admiration of the age and nation in which they lived, and leave to posterity, in their productions, a lasting monument of their intellectual resources. It was, indeed, fortunate for the subject of this memoir, as well as for his country, that he was cotemporary with a nobleman, the Duke of Bridgewater, whose liberality and science conferred distinction on his rank. Without such a concurrence, an opportunity might have been wanting to this ingenious projector, of convincing the world, that his projects, though bold and surprising, were not impracticable. James Brindley was born at Tunsted, in the parish of Wormhill in Derbyshire, in the year 1716. The total neglect of his education is attributed to domestic difficulties, incurred, in a great measure, by his father's imprudent devotion to field-sports, though he possessed but a very small freehold. Young Brindley, in consequence of his father's indiscretion, was obliged to lend his childhood to such labour as it was equal to, instead of employing it in acquiring the elements of future improvement in letters, or in science. Having reached his seventeenth year, he bound himself apprentice to Mr Bennett, a millwright, near Macclesfield in Cheshire; in which employment he soon taught his master to confide in his judgment, and stood much above him in the opinion of the millers. Before the expiration of his apprenticeship, he had the satisfaction of seeing that his master, who was now grown old, derived a comfortable subsistence for his family from his industry and reputation. Some opinion may be formed of his devotion to his favourite occupations from the following fact: Mr Bennett having inspected an engine paper-mill, had undertaken to erect one; but, before its completion, a millwright, who happened to see it, did not scruple to say, that it would never work as was proposed. Brindley, who appears to have doubted the correctness of his master's representation, took the pains to visit it at the distance of fifty miles, which he performed in the only interval that could be spared him, betwixt the Saturday evening and Monday morning following. His suggestions are said to have enabled his master not merely to execute his promise, but to improve upon the original design.

Brindley.

As soon as he was free to act for himself, he professed the occupation of millwright on his own account; and, before he had reached his fortieth year, his name was in the highest repute in all the counties in his vicinity. Some of the principal works to which he owed his reputation in those parts, were a water-engine, which he erected in the year 1752, at Clifton in Lancashire, for the purpose of draining some coal-mines; a silk-mill, which he was employed to construct at Congleton in Cheshire; and a steam-engine, the boiler of which was of brick and stone, and the cylinders of wood hooped together, which he erected near Newcastle-under-line. From this time his whole strength was directed to the improvement of inland navigation; in which important design he co-operated with the Duke of Bridgewater. His Grace, having calculated the gains that might accrue from a canal which should connect his estate at Worsley, containing valuable coal-mines, with the populous and manufacturing town of Manchester, called in the advice and practical ability of Mr Brindley. After a careful survey, he pronounced the work, though difficult, not impracticable. The plan finally proposed, and for the execution of which an act of parliament was obtained in 1759, was, to carry the canal over the river Irwell, near Barton Bridge, to Manchester, and to lead off a branch to Longford Bridge, in Stratford. This was to be accomplished without the aid of locks, by preserving the same level through the whole course of the canal. After many difficulties had been surmounted, of sufficient magnitude to have deterred an ordinary man from the undertaking, the great labour remained, which was, to carry the canal over the river at the height of thirty-nine feet above the surface of the water. Though Brindley was confident of the practicability of the design, he wished his Grace to take the opinion of some able engineer before the attempt was made. A gentleman was accordingly consulted, to whom the scheme appeared to demand ridicule rather than deliberation. He is stated to have said, "that he had often heard of castles in the air, but was never before shewn where any of them might be erected." Neither Brindley's confidence, nor the Duke's acquiescence in his judgment, was shaken by this declaration. The work was begun in September 1760, and in the July of the year following a boat floated along the aqueduct. The design extended with the progress of the work; and another branch was opened from the canal, which was to be carried over the rivers Mersey and Bollan, besides many deep vallies, in its extension to the tideway in Mersey. Here the obstruction of locks was also avoided. High mounds of earth were raised across the vallies, the ridges of which became the bed of the canal. In order to reduce the labour and cost of the work, Brindley suggested the simple method of bringing boats filled with earth along the channel, as far as it was wrought; at which point a caisson, or cistern made of timber, received the boat, and the bottom being opened, its load of earth descended, and gradually displaced the water. In consequence of the successful issue of this undertaking, the remainder of Mr Brindley's very useful life was chiefly employed in making surveys, laying out canals, and sometimes superintending the execution of his plans. Of this number, the most remarkable is the Grand Trunk Navigation, as he called it, which is carried through a space of ninety-three miles, from the Trent to the Mersey. This design was completed in eleven years, five years after the decease of the projector. It was furnished with seventy-six locks, and conducted through not less than five tunnels, one of which pierces through Air-Castle-hill, and is 2880 yards in length, and more than seventy yards below the surface of the earth. The counties of Durham, Westmoreland, Lancaster, York, Chester, Stafford, Worcester, Warwick, Somerset, Sarum, Devon, Hants, and Oxford, have all derived local improvement and advantages, either from his surveys, plans, or superintendence of inland navigations. It is probable, that a man more unlettered than Brindley never obtained distinction in any pursuit connected with science. If it is not true, as has been said, that he could neither read nor write, yet it is certain that his writing was confined to a few occasional letters to his friends, and his reading appears to have been almost as circumscribed as his writing.

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* Stolberg, who visited Brindisi in 1792, makes the population of Brindisi 6000, but we have followed a later writer M. Ange Masci, who has written a learned memoir on the origin, manners, and actual state of the Albanese.

So little did the operations of his mind depend upon the use of visible signs, that the combinations of his machinery were often formed without their aid; and, when his employers have expressed no wish to see his plans delineated, they have even been carried into execution without having ever been expressed in figures. To aid the abstraction of his mind, when engaged in complex arrangements, he was accustomed to retire to his bed, and remain there till the design was mentally completed, sometimes as long as two or three days. His memory, which was never taught to distrust itself, and commit its possessions to paper, was in no danger of suffering any link in his mechanical arrangement to escape. Of this he was so confident from experience, that he often declared, if he had time enough to complete his combinations, he was perfectly secure of retaining every part of the design, however complex.

Mr Brindley was endowed by nature with great powers of mind, but they never possessed that flexibility of application which might have been produced by the various exercises of a liberal education. He thought vigorously and justly in his own particular sphere; but when placed in circumstances in which it was natural he should apply his reason to subjects of which he had no knowledge, he expressed all that uneasiness which must arise in a mind fond of order in the midst of inextricable confusion. Hence it is related of him, that, after having once seen a play in London, he declared, that the spectacle produced such distraction of thought, as to unfit him for some time for his customary pursuits, and he never would repeat the experiment. During several of the last years of his life, Mr Brindley was afflicted with a hectic fever almost without intermission. He did not survive his fifty-sixth year. He died September 27. 1772, and was buried at New Chapel in Staffordshire. See *Biograph. Britan.* (J. M.)

BRINE Springs. See Salt.

BRISAC, Brisach, or Breysach, a city of Germany, and capital of Brisgaw in Alsace, was formerly one of the strongest towns in Europe, and, from its strength, has been denominated *the Citadel of Alsace, the Head of Germany, the Pillow of Austria.* In 1331, it was mortgaged by the Emperor Louis of Bavaria, to Otto Duke of Austria, and the transfer was ratified by Charles V. in 1348. Gustavus Horne, a Swedish general, after having acquired great advantages over the imperial army, made an attempt upon Brisac in 1633, but was thwarted in his designs by the activity of the Duke of Ferrara. In 1638, it was besieged by Bernard of Saxony, Duke of Weimar, and compelled to surrender, after having been reduced by famine to such extremities, that the governor found it necessary to place guards upon the burying grounds, to prevent the inhabitants from digging up and devouring the dead. It was soon after occupied by the Marshal of Guebriant in the name of Louis XIII. of France, to whom it was formerly ceded, both at the peace of Westphalia in 1648, and at the peace of the Pyrenees in 1659; but it was restored to the Emperor of Germany in 1700, after a stone bridge, built over the Rhine in its vicinity, had been destroyed. It was taken again by the French in 1704, with an army of 40,000 men under the Duke of Burgundy, after the trenches had been opened against it only three days; but, upon suspicion of treachery, its governor, Count D'Arce, was beheaded; the second in command, Count Marsigli, sentenced to have his sword broken over his head by the hands of the common hangman; and all who signed the capitulation subjected to punishment. It was restored to the empire in 1715, with many of its strong works dismantled; and in 1741, its fortifications were completely destroyed by order of Maria Theresa, Queen of Hungary and Bohemia. A bridge of boats over the Rhine was also broken down, and there is now only a ferry in its place. It is thus described by Bishop Burnet, as it appeared in 1685, before it had undergone these successive demolitions. "The town of Brisac riseth all on a hill, which is a considerable height. There were near it two hills; the one is taken within the fortifications, and the other is so well levelled with the ground, that one cannot so much as find out where it was. All the ground about, for many miles, is plain, so that from the hill, as from a cavalier, one can see exactly well, especially with the help of a perspective, all the motions of an army in case of a siege. The fortification is of a huge compass, above a French league, indeed almost a German league. The bastions are quite filled with earth; they are faced with brick, and have a huge broad ditch full of water round them. The counterscarp, the covered way, (which hath a palisade within a parapet), and the *glacis*, are all well executed. There is a half moon before every *cortin;* the bastions have no *orillons* except one or two; and the cortins are so disposed, that a good part of them defendeth the bastion. The garrison of this place, in time of war, must needs be 8000 or 10,000 men. There hath not been much done of late to this place, only the ditch is so adjusted that it is all defended by the flanks of the bastions." It is situated on the right bank of the Rhine, 27 miles north of Basle, and 40 from Strasburgh. N. Lat. 48° 51′, E. Long. 7° 49′. (*q*)

BRISAC, New, a town of France, in the district of Colmar, and in the department of the Upper Rhine, is situated directly opposite to Old Brisac, and stands about a mile's distance from the left shore of the Rhine. It was built by Louis XIV. and fortified by the celebrated Vauban. It stands entirely on a plain, and the streets are so regularly disposed, that all the gates may be seen from the market-place. It contains nearly 2000 inhabitants. (*q*)

BRISSOT, James Peter, from whom the only party justly denominated republican, that possessed the powers of government during the French revolution, received the name of Brissotines. This ardent political reformer was born at Chartres, in the Orleannois, in the year 1754. His father, who was a *traiteur* or master of an eating house, having designed him for the law, gave him a liberal education, and enabled him to serve as clerk five years, with a view to that profession. He had, however, before the end of that period, contracted a dislike either to the study or the practice of the law, and the resolution which he soon took of abandoning the pursuit, naturally drew upon him the displeasure of his father. From this time he depended solely upon his own resources, and the aid of some friends, who were willing to support him in the application of his talents to general literature. His exertions were sufficiently profitable, coupled as they were with habits of the strictest economy, to enable him to subsist himself at Paris; and on his father's death, he was also able to discharge his pecuniary obligations to his friends. Politics appear to have engaged his principal attention from the commencement of his studies, and he now presented the public with the first fruits of his labours, as the superintendant of a publication at Boulogne, entitled *Courier de l'Europe.* This paper was soon suppressed by government, when Brissot took up his residence once more at Paris. Before he quitted Boulogne, he had, however, been introduced to the mother of his future wife, who kept a lodging-house at that place. Her daughter, Mademoiselle Dupont, was engaged by Mad. de Genlis, as reader to the daughter of the Duke of Orleans. When she became the wife of Brissot, she discharged the duties of the conjugal relation so well, as to obtain the particular commendation of Mad. Roland for her domestic virtues. The productions of Brissot's pen at this period, (about the years 1780 and 1781,) were the *Theory of Criminal Law*, 2 vols. 8vo; the commencement of a work, entitled, *A Philosophical Library of Criminal Law*, which was afterwards completed in 10 volumes; one volume on *Truth*, intended to be preliminary to a more ample discussion; and two discourses on subjects connected with *Criminal Law*, which were crowned at the Academy of Chalons sur Maine. Brissot, who possessed all the zeal of a political reformer from the very commencement of his career, soon took leave of Paris; and, having made a short visit to Geneva and Neufchatel, passed over into England, and fixed his residence in London, in prosecution of a design of conducting a periodical publication, to be entitled, "A Universal Correspondence on points interesting to the welfare of Man, and of Society." London was chosen as the centre where information was to be collected from all points, and from which it was to issue in all directions through the medium of this publication. In this way, it was thought possible to evade the restriction upon the press in France, and illuminate that country, by means of presses employed in England, Switzerland, and Germany. The design failed, and the cost of the experiment subjected Brissot to an arrest in London, from which he was freed by the liberality of a friend. On his return to Paris, he pursued the same course of literary and political labour; and being connected, as was supposed, with the Marquis of Pelleport in a publication which gave great offence to government, he was committed to the Bastile in July 1784. His liberation was soon obtained through the mediation of the Duke of Orleans; but it was not long before a *lettre de cachet* was again issued against him, in consequence of an attack which he had made on the administration of the Archbishop of Sens. At this time he was a resident in the Palais Royal, and received a liberal salary as secretary to the chancery of the Duke of Orleans. He escaped imprisonment by a journey to Holland, and a temporary abode at Mechlin, where he edited a paper, called *The Courier Belgique.* Unable to succeed in his plans of political improvement in Europe, in the year 1788 he crossed the Atlantic, for the purpose of promoting the designs of the society called *Les Amis des Noirs,* which aimed at the abolition of Negro slavery; and also in order to choose some part of the American territory, to which a colony of the French were to emigrate, and to erect themselves there into a pure republic. Before his departure from Paris, his thoughts had been much employed on the subject of American

Brissot.

Brissot. connection, and a work was produced by him in conjunction with Claviere, entitled, "The Commerce of America with Europe, particularly with France and Great Britain, stated and explained;" and, on his return from the western world, he published his travels in America; more remarkable for the display of the sanguine views and wishes of the writer, than for profound and just reflection.

At length, the events which immediately preceded the French revolution, promised to the ardent mind of Brissot that amelioration of the social state, which had long employed his speculations, and animated his exertions. Previous to the assembly of the states general, he published a plan of conduct for the deputies of the people. On the storming of the Bastile, the keys were deposited with him. He was appointed president of the Jacobin club. Frequent publications, tending to republicanism, issued from his pen; and on the flight of the king to Varennes, he no longer hesitated to lend his voice to the establishment of that form of government. In the year 1791, he was chosen one of the representatives in the legislative assembly, of which he was also appointed secretary. Though it is certain that several in that celebrated body possessed talents, and had made acquirements, far exceeding those of Brissot, yet such was his zeal, activity, and reputation for integrity, that he was regarded, as, in some sort, the leader of the party called Girondists; which party was, in a great measure, composed of men the most distinguished in all France, both for literary and scientific attainment, and for public virtue. Brissot himself was an honourable pattern of the self-denying virtues. His abode was up four pair of stairs, and his income arose solely from the sale of a newspaper, of which he was a proprietor, and his stipend as deputy. The fluctuating policy of Louis XVI. induced him to commit to Brissot the appointment of a new and popular ministry, on the removal of Delessart and his colleagues from power. Dumourier, Claviere, and Roland, were appointed, and the ruin of La Fayette was decreed. Articles of accusation against that general were soon exhibited, signed by Brissot and six other members of the assembly, in which surmise supplied the place of evidence. Though it may be thought that the writings of Brissot at this time naturally prepared the way for the atrocities of the 10th of August, 1792, yet during the massacre of the Swiss guards, he was not inactive on the side of humanity, and several lives were preserved by his exertions. That event was soon followed by the suspension of the king's authority; and the declaration to the neutral powers on that occasion, was the production of Brissot. On the meeting of the national convention, a body very differently constituted from the assembly which preceded it, though Brissot took his place as member for the department of Eure and Loire, he soon found himself engaged in an unequal conflict, with a faction formidable for their intrepidity and ferocity, if not for their talents, and now rendered invincible by possessing the favour of the Parisian populace. This party, which was described by the name of the Mountain, consisted partly of the partizans of the profligate Duke of Orleans, partly of ambitious demagogues, who wished to abuse the name of liberty to the worst purposes of tyranny, and perhaps of a small number of honest but fierce and intractable supporters of pure democracy.

Against such men as Marat, Danton, Robespierre, and their fit coadjutors and adherents, the comparative moderation and mild policy of the friends of Brissot were not likely long to maintain their ground. In vain did Brissot and his companions attempt to save the king from the scaffold, after having found him guilty at the bar. In vain did they warn the people of their danger from factious leaders and artful declaimers. The invading army was within the frontiers of the republic; Dumourier had abandoned his post; and the manifesto of the Duke of Brunswick threatened Paris with desolation. Terror has an easy conflict with reason; and the only true friends of the people that yet remained in the metropolis were rendered objects of popular suspicion by their adversaries. In the months of May and June, 1793, the arrest of the faction of the Girondists was decreed. Brissot was taken in his attempt to fly into Switzerland, after an interval of several months, on October 24, 1793. Raised upon a seat amidst his companions, Brissot was brought to a mock-trial before the revolutionary tribunal. They were condemned to the guillotine. The night preceding their execution, they passed together, and on the fatal morning, Brissot fell beneath the knife, the seventeenth upon the list, without betraying any marks of anger or dismay. That he mingled in the struggles of a revolutionary period without guilt, will scarcely be believed; but candour may allow, that his errors arose, rather from an excess of ardour, than any defect of principle or humanity. See *Life of Brissot*, prefixed to his Works. (J. M.)

BRISTOL, the *Caer Brilo* of the Britons, and *Brightstow* of the Saxons, stands on an elevated peninsula, formed by the rivers Frome and Avon, partly in Somerset, and partly in Gloucestershire; and for wealth, trade, and population, is the second city of England. According to a tradition of William of Worcester, Bristol was built by Brennus, a prince of the Britons, 380 years before the Christian æra; in allusion to which, two statues are placed over St John's gate, emblematic of Brennus and Belinus, who are said to have reigned conjointly after the decease of their father. However this may be, it is evident that Bristol was, at an early period of our history, a place of considerable importance. It is mentioned by Gildas under the name of Caer Brito, among the fortified cities of Britain, as early as A. D. 430; and also by Nennius in 620, in his enumeration of the 28 cities of Britain. It was first encompassed with a strong wall by Robert, the illegitimate son of Henry I., who, in 1130, also rebuilt and improved the castle, which, excluding the outworks, was 450 feet in length, and 300 in breadth. This fortress was long considered a place of great strength, and stood for seven centuries the subject of much negociation and contention. It was razed to the ground by order of Oliver Cromwell, in 1665, and the only vestiges which remain, are now incorporated with other buildings. Though Bristol has often been the scene of contention, and has frequently suffered from the vicissitudes of war, yet it has been continually increasing in extent and opulence, until it has attained its present eminence as one of the principal cities of Europe. Besides the peninsula between the Frome and the Avon, which contains the old town, St Michael's hill and King's Down on the north, College Green on the west, and Radcliffe hill on the south, are covered with public and private buildings, the whole extending over a surface of nearly 1500 acres of ground. The city contains 600 streets, lanes, squares, courts, &c. with 17 churches and about 30 chapels or meeting-houses. It is above seven miles in circumference, two-thirds of it being on the Gloucestershire side of the river; and including the suburbs from Lawrence hill on the east, to the hot wells on the west, it is more than three miles in length. The streets in the old town are crowded and irregular, and most of the houses are built of wood and plaister. Great improvements, however, have lately been made. Many of the streets have been widened, particularly the avenues leading to the river, which, from being formerly very steep, are now rendered easy and convenient. But the suburbs, and the external parts of the city, contain the most elegant and spacious buildings, which are composed entirely of brick and stone; all other materials being now prohibited in Bristol by act of parliament. These are chiefly inhabited by gentry, merchants, and retired tradesmen, or let as lodging houses. The principal public buildings are, the cathedral, the church of St Mary Radcliffe, and the exchange. The cathedral is only a part of the original church of the abbey of St Augustine, which was partly demolished at the dissolution of the monastery; and when Bristol was erected into a bishop's see by Henry VIII., what remained was converted into the present cathedral. It is 173 feet long, and 128 broad, and, at the west end, has a large square tower 130 feet high, ornamented with battlements and 4 pinnacles. The establishment of the cathedral consists of a bishop, a dean, six prebendaries, and other inferior officers. The arch-deacon of Dorset has also a stall in the cathedral. The church of St Mary Radcliffe is one of the finest in the kingdom. It stands on Radcliffe hill, and is said to have been founded by Simon de Burton in 1292, and finished in 1376, and was then celebrated for the beauty and elegance of its architecture over all England. It was built in the form of a cross, with a tower and spire 250 feet high, and richly ornamented with carved work; but in 1445, part of the spire was destroyed by lightning, and the church much damaged. The spire has never since been rebuilt, but the church was repaired by the munificence of William Canninge, a mayor of Bristol, of whom it contains two beautiful monumental statues, one habited as a magistrate, and the other as a priest, he having, in his latter days, taken holy orders. Though a massy and lofty building, yet, from the peculiar beauty of the mason work, this church has a light and airy appearance. The exchange, in Corn-street, is a handsome structure in the Grecian style, built by Wood the architect of Bath, at the expence of £50,000. It is 110 feet in front, and 148 deep; and the place intended for the merchants is a peristyle of the Corinthian order, 90 feet by 80, capable of containing 1440 persons. The merchants, feeling the want of an accommodation similar to Lloyd's in London, determined upon building a commercial coffee room to supply the deficiency. A subscription was accordingly opened, and L. 17,000 was raised in two days, L. 25 being the amount of each share. The entrance to the building is from Corn-street, under an Ionic portico of four columns, supporting a grand pediment, on which are placed three beautiful colossal statues, representing the city of Bristol supported by navigation and commerce. The grand room is 60 feet long, 40 wide, and 25 in height. The other public buildings are the theatre royal in King's-street, pronounced by Mr Garrick to be the completest in Europe of its dimensions; the assembly rooms in Prince's-street; the guildhall, mansion house, and custom-house. There are several benevolent institutions in Bristol; among which, are the general hospital for the reception of patients of every description, and of every nation; Queen Elizabeth's hospital, in which 100 boys are maintained and educated, six of whom are allowed £10 each, and the others 8 guineas, to bind them apprentices; Colston's hospital, where the same number of boys are maintained for seven years, and taught and apprenticed in the same way. This benevolent gentleman founded another hospital in 1691, for 12 men and 12 women, with an allowance of 3s. per week, and 24 sacks of coals in the year, for which he appropriated £25,000; and in conjunction with the merchants of the city, he instituted a third, in which are maintained 18 men on account of the merchants, and 12 men and women on account of Mr Colston. Bristol claims the honour of having shewn to the rest of England the first example of a regular provincial infirmary. It was founded in the year 1735, through the exertions and munificence of John Elbordye, Esq. and Dr Bonythorn, its first physician and treasurer, seconded with the assistance of the corporation and citizens at large. The gross receipts for the year 1810 amounted to L. 8968; in which year were admitted 1225 in-patients, and 2607 were relieved as out-patients. A new wing has lately been added, which cost about L. 10,000.

The quay of Bristol is one uninterrupted wharf of hewn stone, extending nearly a mile along the inner shores of the Frome and Avon, from St Giles to Bristol bridge. At flood tides, there is sufficient depth of water for the largest vessels to ride close to the walls, and discharge their cargoes; but before the improvement of the harbour, they lay a-ground in the mud, at low water, from which they often received considerable damage. This circumstance, together with the difficult navigation to and from the Severn, through a narrow river, induced the inhabitants of Bristol to apply to Parliament for an act to improve their port, and to amend the navigation of the Avon. This improvement has been of the greatest advantage to the city, and is a wonderful saving of time and expence to all who frequent the port. The bed of the Avon and Frome has been dammed up as far as the hot wells, and a new channel cut for the river through Radcliffe meads; and the navigation of the Avon in one level has been opened up as high as Keynsham. The harbour is now capable of accommodating 1000 vessels, which are not only kept afloat at the quays, but are enabled to enter the locks, and go to sea at neap tides. Upon changing the course of the Avon, two cast iron bridges were erected by Mr Jessop over the new channel. The span of the iron work of each arch is 100 feet, and the rise 12 feet 6 inches, or $\frac{1}{8}$ of the span: (See BRIDGE, p. 541.) The wet docks here are very extensive, and the merchant floating dock is said to exceed in dimensions even those at Portsmouth or Plymouth. This improvement of the har-

Bristol.

bour cost upwards of L. 300,000, which was raised by shares of L. 135 each.

Bristol has long been distinguished as one of the first commercial cities in the kingdom, and trades with more independence on the port of London than any other place in Britain. At a very early period, it carried on a considerable traffic with every part of Europe. Its harbours were filled with vessels from Denmark, Prussia, and the Hanseatic towns, which imported much foreign wealth into the country; and this city has alway been ready in furnishing ships and money for the service of the nation. Many vessels were fitted out at this port for the purpose of discovery; and its merchants were among the first that entered into the West India trade, and engaged in the cod fishery on the coast of Newfoundland. Before the country was intersected with canals, the home trade of Bristol was greatly supported by its extensive communication with the Severn, Wye, and the other rivers on the west side of the island; and hence it enjoyed the export and import traffic of a large part of the kingdom. Whatever exportations they made to any part of the world, they could import the full returns, and find a market, without consigning their cargoes to any other port. But since the canal navigation was established, this trade has considerably decreased, as the goods of Liverpool and London now find their way into the very heart of the country. Its foreign commerce, however, is in a more flourishing state, the principal branch of which is with the West Indies. They carry out materials for building, and every article necessary for clothing and maintaining the inhabitants; and bring in return the productions of the islands, such as cotton, rum and sugar, &c. with which they supply all South Wales, and the western counties of England. They furnish the western cloth manufactories with wool from Spain, of which they annually import from 4 to 6000 bags, and give in exchange a variety of goods, particularly tin, lead, and copper. Great quantities of glass ware are exported to Ireland and America, especially bottles, of which nearly the half are filled with beer, cyder, perry, and Bristol water. Bristol carries on also a general trade with the north of Europe, Portugal, the Mediterranean, Africa, and Newfoundland.

In 1787, there were entered at the custom-house of Bristol,

	Inward.			*Outward.*	
	Ships.	Tons.		Ships.	Tons.
British,	416	48,125	British,	382	46,729
Foreign,	69	11,112	Foreign,	66	10,445

In the same year, the number of vessels belonging to this port amounted to 365, and their burthen to 55,809 tons: Of these, 328 were engaged in the foreign trade, 30 were coasters, and seven fishing vessels, &c. The following year they had considerably increased; as we find, by another computation, that they then amounted to 392 vessels; of which 34 were employed to Jamaica; 38 to the Leeward Islands; 50 to North America; 37 to Africa; 33 to Newfoundland; 200 to London, Ireland, and the Continent; besides 103 trows employed in the trade on the Severn and Wye. The commerce, however, of this port received a severe check during the last and present war. The hand of industry was paralized, and the spirit of adventure almost entirely extinguished. But it is again beginning to revive, from the new improvements and conveniences of its harbour, and has rather been in the increase during this year or two (1812): for, notwithstanding the distress that has occurred in the commercial world, not a single bill has been returned by this city on the West Indies. In order to give our readers some general idea of the nature and quantity of the commodities imported into this city, we have collected, in the following Table, the weekly imports of the three last months of 1811.

Commodities.	*Week ending Oct. 28.* 1811.	*Commodities.*	*Week ending Nov. 25.* 1811.	*Commodities.*	*Week ending Dec. 23.* 1811.
Sugar, - -	542 hds. 54 trs. 8 bbls.	Spanish wool, -	35 bags.	Sugar, - -	583 hhds. 30 trs. 75 lbs.
Rum, - -	130 puns. 3 hhds.	Sugar, - -	331 hhds. 5 trs. 3 bbls.	Rum, - -	110 puns. 20 pipes.
Brandy, -	30 pipes.	Rum, - -	20 puns.	Lemons and oranges,	659 boxes, 9 chests.
Wine, -	91 pipes.	Wine, - -	1 pipe.	Cyder, - -	16 pipes.
Tobacco, -	307 hhds.	Currants, -	43 butts	Wine, - -	4 hhds. 3 pipes.
Rice, - -	1 tierce.	Raisins, - -	1012 bbls.	Lime juice, -	1 hhd.
Coffee, -	12 puns. 7 bbls.	Figs, - -	5000 boxes,	Cork, - -	55 cwt.
Ginger, -	3 bbls.	Tobacco, -	225 hhds.	Pine timber, and plank, -	491 pieces, 160 feet.
Juniper berries,	400 sacks.	Fustic, - -	20 tons.	Birch timber, -	6 pieces.
Oil, - -	45 casks.	Logwood, -	35 tons.	Box wood, -	4585 lbs.
Sallad oil, -	10 half chests.	Mahogany, -	182 logs.	Lath wood, -	7 fathoms.
Turpentine, -	20 bbls.	Pine timber, -	1728 pieces.	Masts and spars,	33.
Tar, - -	25 bbls.	Beech timber -	61 ditto.	Staves, -	420.
Brimstone, -	40 tons.	Lath wood, -	1634 ditto.	Horns, -	3300.
Fustic, - -	3 tons.	Pine plank, -	1000 feet.	Cod and seal oil,	345 casks.
Logwood, -	8 tons.	Deals, and deal ends,	2510.	Train oil and blubber,	59 hhds. 23 casks.
Pine timber, -	173 tons.	Staves. - -	167,100.	Cod-fish, -	1242 cwt. 3 bbls.
Staves, - -	31,500.	Seal skins, -	123 bundles, 3 hhds.	Cod-sounds, -	19 kegs.
Cork, - -	10 cwt.	Cod-fish, -	1444 quintals.	Seal skins, -	294 bundles.
Spars and masts,	177.	Butter, -	1252 firkins, 643 casks.	Lard, -	45 bbls.
Handspikes, -	535.	Bacon, -	11 bales.	Bacon, From	9 ditto.
Lancewood spars,	151.	Pork, From	20 bbls.	Pork, Ireland.	11 ditto.
Billets, - -	1100.	Beef, Ireland	139 trs. 26 half bbls.	Butter, -	50 casks.
Deals and deal ends,	4918.	Rags,	2 crates.		
Linen, -	4 bales.	Feathers, -	18 bags, 7 packs.		
Butter, -	495 firkins.	Seed and train oil, -	420 hhds. 31 half bbls. 63 casks.		
Pork, From	50 bbls.				
Feathers, Ireland.	18 bags.				
Calf skins, -	20 bales, 109 bundles.				
Kelp, -	186 tons, 29 cwt.				

Bristol has many considerable manufactories, which furnish it with several valuable articles of exportation. Glass-making is carried on to a very great extent, and is greatly increasing; and more glass is said to be made here than at any other place in England. There are 20 sugar-houses, for the manufacture and refining of sugars; several large distilleries, which help to supply the London market, and which have also a considerable foreign exportation; a brass-rolling manufactory; extensive iron founderies, where cannon are cast and bored; a manufactory of zinc out of calamine stone; large soap-works, where the best hard white soap is made, which is sent to most parts of the kingdom, and of which great quantities are exported to America; manufactures of white and red lead, and of lead shot; turpentine, sulphur, and vitriol works; and a manufacture of china ware. In the neighbourhood of Bristol, are found those six-cornered stones called Bristol stones, which were formerly in such great request; and between this city and Bath, at a place called Warmley, a company of Bristol merchants have established an extensive manufactory of pins and other brass articles, which is wrought by water raised by two steam engines, and at which several hundred hands are employed, excluding 200 children of both sexes, from 7 to 12 or 13 years of age. The woollen manufactures of Bristol, for which it was formerly so famous, are now at an end, and nothing remains of this trade but a few serges and other stuffs. Besides its own manufactures, Bristol exports various commodities of the surrounding country, as cheese, cyder, and beer, herrings taken in the channel, salt from Droitwich, coarse woollens and stockings, hardware from Birmingham and Wolverhampton, and earthen ware from Staffordshire. It has two fairs in the year, on the first days of March and September, which continue for ten days, and are frequented by shop-keepers, from all parts of the kingdom.

The hot well, which is much frequented during the summer months, is about a mile west of the city, close to the Avon. It rises at the bottom of the cliff called St Vincent's rocks, between the high and low water marks, and is defended from the tide by a thick wall. The spring, according to Dr Carrick, discharges nearly 40 gallons in a minute. The water he found to be inodorous, sparkling, and pleasant to the taste; its temperature, as it issued from the pump, 74½ deg. of Fahrenheit, and its specific gravity 1.00077. According to the doctor's analysis, a gallon of the water contains of muriate of magnesia 7¼ grains, of muriate of soda 4 grains, sulphate of soda 11¼ grains, sulphate of lime 11¾ grains, and carbonate of lime 12½ grains, making altogether 47¾ grains of solid matter. It contains also 30 cubic inches of carbonic acid gas, and 3 cubic inches of respirable air. These waters are highly useful to persons afflicted with consumption, diabetes, scrophula, all diseases of the liver, especially those brought on by irregular living; in atony, indigestion, dysentery, diarrhœa, and in many inflammatory complaints, and may be drunk as freely as the thirst requires it. We may mention a singular phenomenon, which was observed here on the 1st Nov. 1755, during the time of the terrible earthquake at Lisbon. The water of the well became, all on a sudden, as red as blood, and so turbid that it could not be drunk; and the tide of the Avon flowed back, contrary to its natural course. At the same time, a similar phenomenon was observed in the village of King's-wood, where the water of a common well, near St George's church, was turned as black as ink, and continued unfit for use nearly a fortnight.

Bristol was erected into an independent county by Edward III., in 1372; it having been formerly reckoned in the parliament-roll as belonging to Somerset. Since that time it has been endowed with various privileges and immunities. By a charter of Edward IV., in 1461, it was exempted from the authority of the high admiral of England by land and water; and such rights of judgment as formerly belonged to the court of admiralty, were referred to the corporation. Its jurisdiction by water was extended, by an act of William, as far up the river as Hanham, and down the channel to the Flat-holmes. The government of the city is vested in a mayor, 12 aldermen including the recorder, who are all justices of the peace, 2 sheriffs, 28 common council men, town-clerk, deputy town-clerk, chamberlain, vice-chamberlain, under sheriff, &c. The mayor is allowed £1000 to support the dignity of his office, and the two sheriffs £500 each. All capital offences, and other crimes committed within the jurisdiction of the city, are tried by the mayor and aldermen: and all law suits that are purely civil, are determined by one of the judges on the western circuit, who comes to Bristol in the autumn of every year.

Bristol returns two members to parliament. They are chosen solely by the freemen of the city, who amount at present to nearly 8000. This freedom may be obtained by servitude, by hereditary right, by purchase, or by marrying a freeman's daughter. Bristol, in 1801, contained 16,896 houses, and 63,645 inhabitants, of whom the females exceeded the males by nearly a third; and 10,190 persons were employed in trade and manufactures. According to the late census, the united population of Bristol, Clifton, and Bedminster, amounts to 71,279 persons, exclusive of sailors. West Longitude of the cathedral, 2° 35′ 28″, North Lat. 51° 27′ 6″. (*p*).

BRITAIN,

Britain.

Situation and extent.

THE most considerable of the European islands, extends from fifty to fifty-eight and a half degrees of north latitude; being, of course, about 500 geographical miles in length. Its greatest breadth, from the land's end to the north foreland in Kent, 320 geographical miles. In British miles, the length may be computed 580, and the breadth 370.

Celts.

With the various etymoligies of the word *Albion* and *Britain*, we need not trouble the reader; most of them are fanciful, all of them seem conjectural. The earliest population of Britain is generally believed to have been Celtic. To the Celtic population of England succeeded the Gothic. The Scythians or Goths, advancing from Asia, drove the Cimbri, or northern Celts, before them; and, at a period long preceding the Christian æra, had seized upon that part of Gaul which is nearest to Great Britain, where they acquired the provincal denomination of *Belgæ*. Their passage to England followed of course; and, when Cæsar first explored this island, he tells us that the primitive inhabitants were driven into the interior parts, while the regions on the south-east were peopled with Belgic colonies. These Belgæ may be justly regarded as the chief ancestors of the English nation. The Saxons, who made the second conquest of England, were inconsiderable in numbers; nor did they exterminate the natives, but made them slaves; and, from the two Gothic dialects, of the conquerors and the conquered, being mingled, sprung the Anglo-Saxon, the parent of our English language. The opinion, it is true, of the population of all Britain being Celtic at the period of Cæsar's arrival, has found many supporters, but it labours under insuperable objections. The Anglo-Saxon, and the English language, have no traces of Celtic in them. They have even less of that Tudesque dialect of the Gothic, which the Angles and Saxons must have spoken at their arrival in Britain, than of the Belgic and Dutch dialects. This is what clearly must have sprung from our Danish and Jutland conquerors mixing a small portion of their dialect with the great body of the conquered people, who still retained the dialect of Belgium.

It has been objected to this statement of our early population, that Druidism, which is generally allowed to be a Celtic superstition, is mentioned by Cæsar in the earliest accounts of the island.

But to this objection it is answered, that Cæsar never speaks of having seen Druids; nor is there mention of any Druid having been seen till the Romans had penetrated into South Wales.

The Welsh are confessed a Celtic race. The Gael or Southern Celts, called Guydels by the Welsh, seem to have been the primitive Celts of ancient Britain. The most ancient names in Wales are Guydelic, not Cumraig or Welsh. These southern Celts are supposed to have been vanquished by the Cimbri of the north, the ancestors of the modern Welsh, who style themselves Cymri to this day.

Of the Gothic origin of the present inhabitants of the Lowlands of Scotland, we have the direct testimony of Tacitus, who speaks of their red hair, and their large limbs, denoting German extraction. At what time the Goths of Scotland expelled the prior Celtic race, it would be as difficult as unprofitable to attempt to ascertain.

The Celts had been probably long expelled from the eastern coast before the arrival of Cæsar. The part of Scotland called the Highlands, has been possessed by a Celtic population since the sixth century; but this was a reflux of the Celts from Ireland, not the remnant of the aboriginal race. The settlement of the Dalriads or Attacotii in Argyleshire, is fixed by antiquarians at the year 258. Their repulsion to Ireland took place in the fifth century; but, in the sixth century, they made another, and a permanent settlement. It has been indeed pretended by Boethius, Buchanan, and some Scottish antiquarians, who make high pretensions to antiquity, that the Celtic Scots reigned in Scotland 1000 years before the Christian æra; but that fabulous millennium is now justly given up.

The Britons, at the time of Cæsar's arrival, like the Gauls from whom they sprung, were divided into many petty kingdoms; in each of which there were subordinate chieftains, who respectively governed their own tribes. On extraordinary occasions, they united under a common leader; but this king of kings had but a short and limited rule; and their confederacies were neither numerous nor lasting. "There was one thing," says Tacitus, "which gave us an advantage over these powerful nations, that they never consulted together for the advantage of the whole. It was rare that even two or three of them united against the common enemy." By this means, as each of them fought separately, they were all successively subdued. Little is known of the limits of regal authority among the ancient Britons; but, if that power be changeable in its extent even in enlightened societies, how dependent must it have been on the personal character of the individual potentate among a people so rude! We have an instance of a father excluding a son who had offended him, from a share in his dominions; we have instances also of the public respect for hereditary right, and of its extending to female succession. From their similarity to the Gauls in other points, Dr Henry has conjectured, that the popular power was considerable; but this is merely conjecture. Whatever the royal or popular power might have been, the priestly influence must have been paramount to both, wherever Druidism existed. No public affair could be transacted without the sanction of the Druids: they could forgive malefactors, as well as sentence victims to the sacrifice: they could excommunicate individuals from attending the holy rites; a sentence as terrible in those times as under the Romish church. Their ceremonies were equally mysterious and inhuman. Misleto, a plant produced

Dru

on the branches of the oak, was gathered by them with every circumstance of awful solemnity. The priestly spoils and property were left in the centre of their consecrated woods, defended from the approach of the people by no guard, but their superstition. In the midst of these groves, they also sacrificed their prisoners and victims; and, from the course of the blood around the altars, foretold the course of future events. They were the law-makers, the physicians, the poets, and philosophers, of their country. They taught their disciples the doctrine of transmigration, and inculcated the duty of despising death in defence of their native country. Britain was regarded by the Gauls themselves as the great sanctuary of Druidism.

Though the insular situation of Britain had early made its shores the resort of foreigners, yet the natives, as they were found by the Romans, had derived but little civilization from foreigners. Their clothing was harsh, untanned skins; the naked parts of their body were coloured, for the sake of ornament, with the smearings of an azure herb. Agriculture had, indeed, been introduced by the Belgic Gauls; but the general food was milk, and the flesh of their herds; for, even to those poor savages, superstition had forbid the use of fish, and several kinds of animal food. Their towns were a confused parcel of huts, covered with turf, boughs, or skins; and were placed without order or distinction of streets, in the midst of some wood or morass, the avenues to which were defended with ramparts of earth and felled trees. They were large, and tall in their persons. "The Britons," says Strabo, "excel the Gauls in stature, of which I had ocular demonstration; for I saw some young Britons at Rome, who were half a foot taller than the tallest men." The same author, however, who speaks of the size of those Britons whom he had seen, describes their shapes and features as clumsy, and says, that they did not stand firm on their legs. Though savages in point of art and industry, the ancient Britons are respectfully spoken of by several Roman historians, with regard to intellectual and moral character. Tacitus says, they possessed a quicker apprehension than the Gauls; and Diodorus Siculus prefers their honesty to that of the Romans. A custom very abhorrent to natural morality is indeed recorded of them, that they possessed wives in common to societies of 10 or 12 persons; but the supposition of such a custom might be easily assumed by a Roman stranger, from the very innocence of barbarians sleeping promiscuously in huts; although the chastity of the sexes might be as purely kept up, as in states of society, where they are divided by greater ceremony.

Though the Phœnician and other merchants were probably early acquainted with the mainland [*] of Britain, yet their exports must have been inconsiderable before the Roman conquest, compared with the articles which were exported after that era. The exports, in the flourishing times of Roman trade, seem to have been copper, tin, lime, chalk, pearls, for the beauty of which our island was celebrated, corn, cattle, hides, horses, cheeses, dogs, and slaves, with the solitary manufacture of baskets [†]. Some of the most useful baser metals seem not to have been found in Britain before Cæsar's time, as he informs us that their brass was imported; and their skill in manufacturing those metals which they had, must have been, at the same period, very rude, since we find that their ornamental trinkets were supplied by strangers Their martial habits, however, were not likely to leave them ignorant of the coarser craft of the armourer. Besides small targets and swords, which, as well as their spears, were supplied with a noisy rattle, intended to strike terror, they used in battle, chariots, with iron scythes projecting from the axle. But though they managed these chariots with expertness, and could sometimes break even the Roman line with them, they were of little use, upon the whole, against disciplined troops, and were heard of no more after the Romans had gained a footing in the island. The Britons shaved all their beard except the upper lip, which, like the Gauls, they suffered to grow to great length. The fulness and beauty of the hair of the head was displayed as a mark of dignified birth.

Britain invaded by the Romans, A. C. 55.

Such were the inhabitants of this island, when Rome, in the plenitude of her republican glory, determined to add it to her empire, about 55 years before the Christian era. With no better pretext for hostility, than a rumour, that these islanders had lent some assistance to the Gauls, Cæsar dispatched Caius Volusenus with a galley, to gain intelligence about the shores, and the natives, whilst he collected a fleet upon the sea coasts about Calais and Boulogne. The Britons, learning his design, sent ambassadors, offering submission. Cæsar dismissed them, after a kind reception, with Comius, whom he constituted king of the Atrebatians; and whom he instructed to gain as strong a party as possible among the British states; and announced to the Britons, that he would soon visit their island in person. The Britons, seeing no hope in negotiation, imprisoned Comius, and raised an army for their defence. On the return of Volusenus, Cæsar embarked the infantry of two legions at a port, supposed to have been Calais, on board eighty transports, and ordered the cavalry of those legions to embark at another, eight miles distant, on board 18 transports. He sailed in person with the infantry transports, about one in the morning of the 26th August 55, A. C. and anchored off the coast of Britain, near Dover, about ten the same day. Perceiving, however, that the lofty cliffs were covered with a British army, he weighed anchor again at three in the afternoon, and, sailing eight miles farther, stopped at a plain and open shore, probably at or near Deal. At first the playing of the engines on board the gallies, which Cæsar sent to flank the opposing Britons, disconcerted their barbarous troops; but still the Romans were backward to encounter both the waves and the enemy, till the standard bearer of the 10th legion jumped into the sea, and called aloud upon his countrymen to follow their eagle, and support the glory of the commonwealth. After a bloody struggle, the Britons were repulsed. They sued for peace, and obtained it at the expence of submissions which they could easily retract, and a promise of hostages, who never arrived.

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[*] We have no direct evidence of foreign merchants visiting the mainland of Britain before Cæsar's time, but only the Cassiterides, adjacent islands.

[†] *Barbara de Pictis veni bascauda Britannis.* Martial.

The Roman cavalry had sailed from Gaul the same day that this truce was concluded; but were driven back to the continent by a storm, which also destroyed many of the gallies and transports that had arrived.

The native chiefs, drawing hopes from this circumstance, retired from Cæsar's camp under various pretexts, and prepared to renew the war. While the 7th legion was gathering in the harvest, they were assaulted by surprise from the adjacent woods, by the British cavalry and chariots, and would have been cut in pieces, if Cæsar had not arrived with a reinforcement. Cæsar himself acknowledges, that he only put the Britons to a stand. He kept his forces facing the enemy for a time, and then led them back to the camp. Upon the whole, by the victor's own account, the laurels which he gained in Britain were both scanty, and hardly earned.[*] Within a few days the Britons were emboldened to approach the Roman camp; they were repulsed, indeed, with great slaughter; but so far was the victory from securing even a corner of the island to its invaders, that peace was again granted, on condition of the British hostages being doubled. These hostages were to *be sent after the conqueror into Gaul.* After staying little more than three weeks, Cæsar embarked his whole army, and returned to Gaul.

Cæsar again invades Britain, A. C. 54.

At a much earlier period of the next year, Cæsar embarked from Calais to renew the invasion of Britain, with an army of five legions, and 2000 horse, on board a fleet of more than 800 ships. The sight of so prodigious a fleet, made the Britons despair of resisting his landing, which took place at the same spot as before. Leaving a small force behind him to defend his fleet, Cæsar pursued the Britons, and overtaking them, after twelve hours march, at a river (supposed to be the Stour), where they attempted to oppose him, drove them before him. They made another attempt to defend themselves in a woody fastness; but their rude entrenchments were forced by the Romans, and they again retreated. Next morning, as the victors had come in sight of the British rear, accounts were brought of a storm, such as had happened in the preceding year, having damaged, and almost destroyed the Roman fleet. The pursuit was stopped till Cæsar had repaired to the coast, and secured his remaining ships in fortifications within the camp.

In the mean time, the British confederates had chosen Cassibelanus king of the Cassi, for their commander in chief, and waited the return of the Romans, with confidence in themselves and their commander. Several skirmishes took place, in one of which they defeated two choice cohorts of the invaders; but in their next attack, after this slight victory, they were entirely routed, and Cassibelanus suffering Cæsar to pass the Thames, at a place supposed to be Conway Stakes, dismissed all his infantry, and retained only his 4000 war chariots, to watch and harass the Roman army. The British states, as Cæsar advanced, made their submissions, and gave him hostages and corn; thus facilitating his progress to the principal fastness of the British commander, which Cæsar forced, and took a great number of prisoners and cattle. Cassibelanus did not yet despair, but formed the bold design of cutting off Cæsar from his fleet, and sent orders to the leaders of the Cantii (the people of Kent), to fall upon the naval camp of the Romans, which was not strongly guarded. Its defence, however, was sufficient to repulse the assailants; and the British leader, seeing no hope in further resistance, sought and obtained a peace from Cæsar, through the mediation of Comius the Atrebatian. Cassibelanus was bound to offer no injury to the British states, which had deserted his alliance for that of Rome. Britain was to give a tribute and hostages to the Romans, but neither the quantity or number is mentioned by Cæsar. At ten at night, on the 25th of September, 54 years A. C. Cæsar sailed with the last embarkation of his army from our coast; and for 97 years from that period, the Britains had no real disturbance, and but few alarms from foreign enemies.

Augustus only threatened them with invasion. He extorted presents and tributes from the princes, and derived a revenue from certain imposts on the mutual traffic between the island and the continent. In the mean time, the natives improved in civilization by their foreign connection, and the merchants of Italy settled in their towns. Tiberius exacted the same tribute, but lived on peaceable terms with them. Caligula's absurd visit to gather the cockle shells on the sea shore, does not deserve the name of an invasion; but in the reign of Claudius, an expedition was prepared in good earnest, with an army of 50,000 men, and Aulus Plautius at the head of it. At first the soldiers murmured at being sent, as they said, beyond the limits of the world; but at last were persuaded to embark, from confidence in their leader.

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[*] That Cæsar gained not even much glory in his British invasion, appears from the testimony of several writers of his age. Lucan plainly taxes him with turning his back upon our countrymen:

Territa quæsitis Ostendit terga Britannis.

Horace speaks of the Britons as unconquered in the days of Augustus:

Intactus aut Britannus ut descenderet
Sacra catenatus via.

Tibullus also:

Te manet invictus Romano Marte Britannus.

And Tacitus, in his life of Agricola, expressly says, that Cæsar only gave the Romans a view, not a possession of Britain.

Potest videri ostendisse posteris, non tradidisse.

Vespasian, the future emperor, had the second command in this enterprize, which was held so important in the eyes of the Romans, that every successive emperor had been predicted by his poets to be the conqueror of Britain.

Aulus Plautius landing unopposed, marched through the territories of the Cattivellauni,* gave three defeats to Caractacus and Togodumnus, the two British leaders; but still their retreating army seemed so formidable, that the Roman general sent for reinforcements, and invited the emperor to come over in person and finish the war; whilst he himself retreated to the south side of the Thames, and remained on the defensive. The reinforcements which Claudius brought, as may be easily imagined, soon altered the face of affairs; the southern part of the island submitted, and Aulus Plautius, from being general, was made governor of Britain. His lieutenant, Vespasian, reduced the Belgae and Durotriges, from Kent to the land's end, after 30 battles. Plautius, with another division, waged war with the inland Britons under Caractacus, so successfully, that an oration was decreed to him at Rome, in which the emperor walked at his left hand to the capitol.

Ostorius Scapula succeeded in the provincial government of Britain in the year 50. The Britons had taken advantage of a short interval between his succession and the recal of Aulus Plautius, when the lieutenant-generals held a joint command, and had plundered the Roman allies; but Ostorius repelled them with great slaughter, and building a chain of forts along the Nen and the Severn, commanded all the natives within that pale to give up their arms. The Iceni,† though early allies of Rome, resisted this indignity, and would have been joined by other revolters, had not Ostorius defeated them in their entrenchments. With similar alacrity he overwhelmed the *Ceangi* near the Irish sea; then turning upon the Brigantes inhabiting Yorkshire, subdued them also once more to the Roman alliance.

In the mean time, Caractacus, who had lost the most of his dominions, had not lost his character or influence among the tribes who had still arms and independence, but at the head of the Silures transferred the war to the mountains of Wales; and at a place which is supposed to be the confluence of the Colne and Theme, built a stone rampart on a hill commanding a river, dangerous to be forded, where he awaited the attack of the Romans. We are not to estimate this ancient patriot by his success. Neither his bravery, nor choice of position, nor the resolution of his followers, who took an oath to die or conquer before they were attacked by the Romans, could atone for the difference of arms and discipline between them and their opponents. The latter, after fording the river, formed the testudo or military shell over their heads with their shields, through which the missile weapons of the natives could not penetrate as they slowly advanced up the mountain. The rampart of loose stones was soon demolished, and when they closed with their heavy armour against the native ranks, they slaughtered them with scarcely the danger of receiving a wound. Caractacus took shelter, after the battle, with Cartismandua, queen of the Brigantes; but his inhuman step-mother delivered him in chains to the Romans, and the unfortunate hero was destined to enter the Roman capital as a captive, in the same procession with his brothers and wife and daughters, who had been taken at the fatal battle. On entering the imperial palace, the British Prince calmly expressed his wonder, that the possessor of so much wealth should disturb him in his miserable cottages. The fame of a hero, who had for nine years resisted the Roman arms, was known throughout all Italy, and had attracted the curiosity of the emperor to see him. The barbarous monarch appeared undaunted before his throne, and addressed him with so much dignity, that even the stupid Claudius was affected, and ordering his fetters to be struck off, treated him and his family with distinguished regard.

Britain.

The Silures beaten, but not yet subdued, rose upon some cohorts, who were building forts in their country, whom they cut to pieces, and once more risqued a general engagement. They were defeated, but escaped without entire rout under cover of night. Continuing from that time their skirmishes and surprises, they gave Ostorius, after all his triumphs, so much vexation, that he died through mental anxiety.

Aulus Didius appointed governor of Britain.

Aulus Didius, his successor, checked the incursions of the Britons, after they had defeated a Roman legion, and become formidable under a new leader worthy of succeeding Caractacus. This was Venusius, chieftain of the Huiccii.‡ He had married Cartismandua, queen of the Brigantes; but that infamous woman had scandalised her subjects, by admitting Villocatus, her armour-bearer, to her bed and throne, and had implored the aid of the Romans, when the injured husband and his adherents turned their arms against the usurper. The event of the civil war was to drive the adulteress, the betrayer of Caractacus, from her kingdom, in spite of her Roman auxiliaries; and the invaders were, for several years, content to preserve, without extending, their conquests.

Paulinus Suetonius attacks Anglesey, A. D. 61.

In the year 61, Paulinus Suetonius led the Roman army to the island of Mona, or Anglesey, the residence of the arch-druid, and the asylum of all the enemies of the Roman power. He found an army drawn up in order of battle to receive him, whose appearance at first struck terror into his soldiers; for besides the armed men, there were women in funeral apparel, who, with lighted torches, ran along the ranks like furies; while woods, held sacred by superstition, and altars burning with fires, gave additional horrors to the scene, and multitudes of druids stood with uplifted hands, denouncing the vengeance of heaven on the approaching invaders of their mysteries. For a while the legions stood powerless, as marks to the arrows of the Britons; but at last encouraged by their officers, they rushed forward and put them to the sword, and after demolishing the altars and groves, burnt the druids in their own fires.

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* Inhabitants of Hertford, Bedford, and Bucks.

† Inhabiting what is now Suffolk, Norfolk, Cambridge, and Huntingdon.

‡ The Huiccii, inhabitants of Warwickshire and Worcestershire.

In Suetonius's absence, the states of the mainland, oppressed by the insufferable tyranny of their Roman masters, conspired for vengeance and deliverance. Prasutægus, the late king of the Iceni, had left the emperor joint heir with his daughters, in hopes of conciliating his protection; but the Roman officers and soldiers plundered the unhappy survivors; and when his widow Boadicea remonstrated, beat her with stripes, and violated her daughters before her eyes. Her whole kingdom was given up to plunder. The Trinobantes[*] had been at the same time stript of their lands, and driven from their houses.

The Britons revolt against the Romans.

Those enraged tribes broke in furiously upon the Roman colony at Camolodunum, and after laying it in ashes, destroyed all the infantry of the 9th legion. Suetonius, on his return to London, was implored by them to remain, and defend them against the insurgents; but he chose to march in quest of the enemy, who entered the place on his leaving it, and put all they found to the sword. In London, Verulamium, and other places, the carnage of the Romans and their confederates was computed at 70,000. Flushed by these successes, and joined by fresh associates, the British heroine gave battle to Suetonius; and dressed in her royal robes, with a spear in her hand, harangued her troops as she drove along their ranks in a lofty chariot, where her two unhappy daughters were seated at her feet. Her forces have been described as innumerably greater than we can suppose the country to have supported, or the Romans to have computed with certainty.

Defeated by Suetonius.

Suetonius, with 10,000 men, waited their tumultuary attack in a position accessible only in front, and repulsed it with the usual success of the Romans. The Britons were entangled in their flight by waggons loaded with their wives and children, to whom, the Roman historian says, they brought to be witnesses of their valour; but whom it is much more probable they placed there for want of a better asylum. After an immense slaughter of her army, the British queen ended her miseries by taking poison.

Suetonius recalled.

Broken as the British spirit must have been by so terrible a blow, it was kept alive, beyond its natural strength, by the torture of oppression. Suetonius, with all his abilities, was injudiciously vindictive. He was recalled from his post by Nero; and three successive governors after him being men of indolent characters, the Britons enjoyed peace for a few years.

A. D. 70. and 75.

But under Vespasian, the Roman energies revived. The Brigantes, with their warlike leader Venusius, were overcome, and the Silures, in spite of their mountainous country, and an obstinate resistance, were subdued.

Success of Agricola.

These successes paved the way for the entire subjugation of the island, under the ablest and best of all the Roman governors Julius Agricola, who knew how to retain, with the humane policy of a statesman, what he had won by his bravery as a soldier. In his first campaign, Agricola quelled the Ordovici,[†] and completed the conquest of Anglesey, from which Suetonius had been recalled by the dreadful insurrection of Boadicea. He accomplished this latter enterprise even without the aid of ships, selecting the best swimmers from his army, who passed the narrowest part of the channel with their horses and arms, but without baggage. In his second campaign, he carried his arms to the north, and subdued nations who never yet submitted to the Romans. Wherever he marched, he shewed clemency to the submissive; and to secure his conquests, built a chain of fortresses from sea to sea, in or near the tract where Hadrian's rampart, and Severus's wall, were afterwards erected.

In his third campaign, he traversed the country of the Caledonians (hitherto unknown,) as far as the Tay, without meeting an enemy in the field. The Caledonians expecting that their invaders would retire in winter, abstained from hostility; but when winter set in, they were disappointed, for they found the troops of Agricola settled in well-stored and fortified quarters, in which they could neither surprise nor besiege them. In the next year of his government, Agricola built a line of forts between the friths of Forth and Clyde; thus excluding, from all the valuable part of Britain, both the contagion of revolt, and from those barbarous inroads which might disturb its peaceable inhabitants. In his fifth year, he crossed the frith of Clyde; and after some successful skirmishes with the ancient natives of Cantyre, Lorn, Argyleshire, and Lochaber, had a distinct view of the coasts of Ireland, and meditated a design, which he never fulfilled, of adding that island to the Roman empire.

In the 6th year of his government, he set out on the eastern coast of Caledonia with an army, and a fleet so near it as to attend and support all its motions. He was opposed by an army of the Caledonians, who, in a night attack upon a portion of his army, threw it into confusion, and having entered the camp of the 9th legion, would have put them to the slaughter, if Agricola had not come up with great celerity to their aid, and driven the Caledonians to their woods and morasses.

Agricola retired, after this action, into winter quarters, and left the Caledonians a short time to prepare for the last struggle, in defence of their independence. When he took the field the seventh time, he found our ancestors encamped on the skirts of the Grampian hills to the number of 30,000, under a warlike leader, Galgacus. The Roman army was little inferior in numbers. Tacitus has employed an eloquence and minuteness in describing this engagement, which would suit a more equal contest. So inferior were the armour and discipline of the Caledonians, that 10,000 of them were slaughtered, while the Romans lost only 340 men. Their missile weapons were, in fact, their only means of offence; their long broad swords being unfit for close action, and their bodies defended by only small targets. After the rout of their main body, a reserve of the Caledonians attempted to take the Romans in flank, but a Roman body, under Agricola in person; foiled this attempt, and the straggling bands of their whole army fled so fast and so far from the scene of action, that next day Agricola's scouts could not discover an enemy or inhabitant over the whole face of the country. A mournful silence reigned in every direction; and nothing was to be seen but the burning of houses, to which the natives themselves had set fire in despair. Agricola proceeded no farther northward, but marched into the country now called Angus, and received hostages from the Horesti. He gave orders to his fleet to sail along the eastern coast to the very northern extremity of Caledonia, and turning its extreme peninsula, to come round westward the whole course of the island, into the harbour from which they had sailed in the spring. His orders were performed, and even the perilous Orcades were subdued. After seven years service in Britain, of unexampled utility to his country, Agricola was recalled. In estimating his character, we are not to found his merit solely on the victories he obtained over naked barbarians. The ascendant which he gave to the Romans over the British mind, was obtained by means more creditable than the sword. He made the provincial Britons emulous of arts and improvements; and, acquainted with the comforts of civilized life, taught the youth of their nobility the language and the sciences of Rome, encouraged ornamental as well as useful public works, the splendid temple as well as the powerful garrison. Thus converting the whole national energy from warlike to peaceable objects, he was all the benefactor to Britain that a conqueror could be. But unhappily a people, who are helped forward to civilization, not by their own strength but by that of others, cannot reap from it its most ennobling effects. Hence, in place of their barbarous energies, was substituted that pliant spirit, which made them cling in supplication round the knees of Rome for protection, when she herself was falling.

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[*] The Trinobantes inhabited what is now Essex, Middlesex, and part of Surrey.

[†] The inhabitants of present North Wales.

From the entire conquest of Britain to the close of the third century, the island is seldom noticed by Roman historians. It was indeed visited by the Emperor Adrian in the year 121, who, either from choice or necessity, abandoned the northern extremity of the province, and built a new rampart, from the Solway to the Tyne, many miles to the southward of that raised by Agricola. In 210, the Emperor Severus found it necessary to come to Britain, and repel the incursions of the Caledonii and the Meatæ. He succeeded; and, having cleared the frontier, erected a stone wall, almost parallel with that of Adrian, on a system so permanent, that the foundations are to this day to be seen; abandoning Agricola's rampart, which had been repaired by order of the Emperor Antoninus Pius. Severus died at York in the year 211, leaving his sons, Geta and Caracalla, joint successors in the empire. Caracalla, concluding a peace with the Caledonians, hastened with his brother to Rome, to plunge into all the debaucheries of his capital; and, for more than seventy years from the time of his departure, the silence of historians may leave us room to hope that there was peace in the island.

In the reign of Dioclesian, Carnusius, an active naval officer, having been entrusted with the command of a powerful armament against the swarms of Saxon pirates who infested the coast of Britain, usurped the purple, and reigned for eight years in Britain with vigour and success; for he not only defended her shores from invasion, but even enlarged the limits of the Roman province, and repaired the wall of Agricola between the Forth and Clyde. At length Constantius, the coadjutor of Dioclesian, preparing to attack Carnusius, was assassinated by his false friend and general Allectus, who immediately assumed the purple and the sovereignty of Britain, and, by means of his naval superiority, maintained it for three years. In 296, Constantius, and his prefect Asclepiodatus, put an end to the rebellion, by defeating and slaying the usurper, after the imperial fleet had narrowly escaped that of Allectus off the isle of Wight by favour of a fog. Constantius, whose character was respectable, was received in Britain rather as a friend than a conqueror. His army had, indeed, essentially served the islanders, by preventing London from being plundered by the Saxon and Gaulish fugitives from the discomfited army of Allectus. In the division of the empire between Constantius and Galerius, Britain fell to the former: he resided in the island, and had some contests with the Caledonians, of which the particulars are not known. On his return from the north he died at York, leaving Constantine the Great his successor in the empire. When that prince introduced Christianity into the empire, Britain was not the last to embrace it. Constantine, who had begun his reign at York, staid some time to pay the last honours to his father's ashes, and to finish the war with the Meatæ and Caledonians, who at this time began to be called by the new names of Picts and Scots.

Allectus usurps the sovereignty.

He is slain by Constantius, A. D. 296.

Christianity introduced by Constantine, A. D. 337.

A. D. 354.

In 354, Britain, which had taken part with Magnentius, an unsuccessful usurper, suffered bitter retribution from the Emperor Constantius, under his secretary Paulus, a Spaniard, who was sent as an inquisitor to the island, to discover those who were concerned in the rebellion. This wretch, who was sirnamed Catena, or the chain, from his adroitness in connecting criminal charges, filled the whole western empire with tortures, murders, and confiscations. Martinus, the British governor, unable to restrain his cruelties, authorised as they were by supreme authority, attempted to slay him, but, missing his aim, he turned his sword against his own bosom. When Julian ascended the imperial throne, one of his acts of justice was to order the inhuman Paulus to be burnt alive.

Cruelties of Paulus.

A. D. 364.

The Roman province in South Britain had suffered but little disturbance from the northern nations for about 150 years; but, about ten years after their deliverance from Paulus, the Scots and Picts, notwithstanding a temporary check which they had received from the commanders of Julian, returned with greater force against the legions of Valentinian and Valens, and ravaged the country for three years with impunity. Theodosius, a British governor, of consummate abilities, was appointed to repair the disasters of the Roman arms. He recovered London from the barbarians, and even extended the province to its utmost ancient limits, the rampart of Agricola. The son of this distinguished commander, inheriting his father's talents, was adopted as partner in the empire by Gratian, the son of Valentinian. Unwisely for themselves, and forgetful of what they owed to the memory of Theodosius, the Britons took part with the usurper Maximus. Maximus

Ravages committed by the Scots and Picts.

was accompanied into Gaul by myriads of Britons; but his enterprize miscarried, and his discomfited soldiers, after having made good their retreat to Armorica, settled there, through despair of ever regaining their native land. Theodosius finally triumphed over all his competitors, and, by sending his vicar Chrysantus with an army into Britain, secured it from the ravages of the north.

New inroads of the Picts and Scots.

After the death of this great man, an inundation of barbarians poured in upon all sides of the western empire, and, among these, the Picts and Scots fell upon Southern Britain. Stilico, the guardian of the young Emperor Honorius, sent over forces, who repulsed the barbarians in victories which are celebrated by the poet Claudian. But, as the Roman empire was now hastening to dissolution, its weakness, like a mortal disease in the body, was chiefly felt at the extremities. The Roman legions in Britain mutinied, and, with equal levity and insolence, set up successively and dethroned several usurpers. The distresses of Honorius obliging him to recal his troops, the island was left defenceless to the northern hordes. Honorius even gave up all claims to the allegiance of the Britons, and exhorted them to defend themselves. For a short time the few Roman veterans, who had settled and still lingered in the lands which belonged to them, gave example and assistance to the natives; but, as these gradually disposed of their estates, and retired to the continent, the multitude became an easy prey. Honorius, upon a favourable turn of his fortunes, sent twice over the aid of a Roman legion, which was sufficient to drive the northern tribes beyond their friths. Gallio of Ravenna, one of the last ornaments of Roman history, commanded the last detachment which Rome ever sent to our island. After repelling the savages, he convened the chiefs of the islanders, and told them with frankness, that, since the empire could afford them no future assistance, they must themselves assume courage to defend all that was dear to them. The repairing Severus's wall, the erection of useful forts, and supplying them with military weapons and engines,—these were the last good offices which the Britons received from their protectors, before they took their final departure, at the distance of 475 years from the landing of Julius Cæsar.

The Romans leave Britain.

But the Britons, as incapable of exerting self-defence as of enjoying liberty, reaped no advantage from these bequests. So little had they profited by the instructions of the Romans, that they knew not how to retrieve each others fatigue by the change of sentinels upon their ramparts. "They fell asleep, (says Gildas), upon their posts, and were dragged off the battlements by the hooks of the barbarians. The Scots and Picts broke over their walls like wolves into a sheep-fold, retired with their booty, and returned every succeeding year. Instead of resisting them, the British states, divided among petty tyrants, turned their feeble arms against each other, till a famine, which was succeeded by a pestilence, threatened depopulation to the whole southern part of the island. In 446, the fame of Ætius, the Roman prefect in Gaul, afforded a forlorn hope of assistance from the Roman arms. Ætius was addressed in a letter, entitled, the Groans of the Britons to the thrice appointed Ætius. "The barbarians," (said they,) "drive us into the sea, and the sea drives us back upon the swords of the barbarians." Ætius might pity the suppliants, but could spare them no assistance, employed as he was in opposing Attila king of the Huns.

A. D. 446.

Despairing of all power to resist their northern invaders, the Britons applied, (it is said) for assistance to the Saxons, a people inhabiting that peninsula, called the Cimbric Chersonesus, which is bounded by the Elbe on the south, by the German ocean on the west, and by the Baltic sea on the north and east. The tribes of this nation had been hitherto known to the Britons only by visits of depredation to their coasts. It is said by the Saxon historians, that the states of the island were convened, and that by the advice of Vortigern, prince of the Silures, the fatal resolution was adopted, of offering their country and their liberties to the Saxons, if they would defend them against the Picts and Scots. That the spirit of the Britons was sufficiently humble to apply to the Romans in the terms that have been described, may easily be conceived: they knew the value of Roman protection, and the Romans were a civilized people; but that they besought the Saxons, a pagan race, known to them only by their ferocity, to accept of their liberties and properties, and that they laid themselves at once at their mercy, in beseeching them for their aid, is a thing so improbable, that the partial authority of the Saxon authors is insufficient to confirm it. It is at variance with human nature, and with that immediate resistance to the Saxons, which the Britons immediately made when they began to seize upon their possessions. We may therefore suppose the first visit of the Saxons to have been accidental, or, if they came invited, that it was only by a small portion of the natives who took them into their pay. The Saxon ships, which we cannot suppose to have conveyed more than a few hundred men, arrived on the British coast in 449. The leaders of the troops were Hengist and Horsa, the fabled descendants of Woden. By their aid the Picts and Scots were defeated; but the Saxons, glad to settle in the fertile fields of a delightful island, in exchange for the bleak shores of the Baltic, invited over fresh reinforcements of their countrymen, and, from the auxiliaries, became the masters of the natives. The Britons exerting, when it was too late, a valour that had been dormant, or wasted itself in civil war, opposed their new tyrants occasionally with success. In one of their battles with the Saxons, the chieftain Horsa fell. His brother, Hengist, in spite of all his victories, so much boasted by the Saxon annalists, does not appear to have penetrated beyond Kent. By degrees, however, the Saxon power reduced the natives either to entire submission, or drove those who retained independence to the mountains of Wales, of Cornwall, and Cumberland. This was effected a considerable time before the reign of King Robert.[*]

The proper history of Britain as one kingdom, does not commence till the beginning of the seventeenth century. In 1603, James the Sixth of Scotland and First of England, succeeded to the throne of Elizabeth. He was the great-grandson of Margaret, eldest daughter of Henry VII.; and his right to the crown was farther strengthened by the act of parliament which had settled the succession on the heirs of Henry VII. by the dying bequest of Elizabeth. As the memory of disputed succession was yet fresh in the minds of the English, the joy of the nation at James's accession was very great. A Protestant and undisputed successor, and a sovereign who was to extinguish the hostilities of Scotland, seemed to be a golden era in the public welfare.

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[*] For the history of England till the union of the crowns, see England.

But the popularity of James hardly survived his arrival in England. The people, who had crowded around him with shouts and acclamations of happiness, were forbidden, by the pride or timidity of the monarch, to shew their loyalty in this noisy manner, and in a short time it became unnecessary to forbid them. He disgusted the English, by heaping favours on unpopular families, and by multiplying the Scots as well as English new nobility. A conspiracy, which, though obscurely developed, was certainly detected in the first year of his reign, attests the discontent of some of the leading characters in the nation. The Lords Cobbam and Gray de Wilton were connected with it, and it was made at a subsequent period the pretext for Raleigh's execution.

Of all those who had hoped for advantage from the accession of James, the puritans, a body of believers now important from their numbers, and destined to take a decisive share in the events of the subsequent reign, had been the most sanguine, and were the most disappointed. They imagined, that the king of a Presbyterian nation would be propitious to a similar church. But James, in his heart, detested presbytery, and gave an audience to the leaders of the puritans only for the pleasure of insulting them. In a conference which those dissenters held with the bishops at Hampton Court, he answered their chief objections himself, so much to the satisfaction of the dignified churchmen, that one of their number, Bishop Whitgift, said, he verily believed the king spoke by the spirit of God.

The first intercourse between James and his English parliament discovered at once the character of the new monarch, and the spirit of the people over whom he had come to reign. Vain, weak, accessible to flattery, arbitrary in principles, though not ferocious in disposition, James had unhappily found in his English ministers, Cecil, Suffolk, and Northampton, as devoted parasites as in Whitgift and the bishops. He addressed the parliament in terms which shewed that he believed himself an absolute king, whose proclamations were to be identified with laws. But it was only his courtiers and bishops who either believed, or affected to believe, him an absolute monarch, and the Solomon of the age. The House of Commons already contained a large proportion of free and intelligent spirits. The principles of independence, which had been upheld in that house, in some instances, against the power of the great Elizabeth, were not likely to be veiled before the mock dignity of James. His first parliament, therefore, reminded him of their privileges; they resisted the encroachment of his chancellor issuing new writs for elections, without an order of parliament after the knight of a county had been duly elected; and they made some laudable attempts, which their successors brought to a conclusion, to emancipate the trade and manufactures of the kingdom from monopolies, as well as the landed interest from some relics of feudal oppression.*

James's accession to the English throne was quickly followed by the conclusion of peace with Spain. A pacific disposition is one of the good parts of James's character, which has been too little allowed. But while the nation was enjoying the first return of peace, a more dreadful blow was meditated against the government in all its branches, and against the religion of the country, than any that is recorded in our history. This was the Gunpowder Plot; for the detailed particulars of which, we must refer the readers to some subsequent pages of our work. † The fears of gunpowder, which were naturally present to James's mind by the recollection of his father's death, happily suggested to him the meaning of threats contained in a letter from one of the conspirators, which had eluded the sagacity of his wisest counsellors. The common danger which the king and parliament had escaped, seems for a while to have cemented them in good humour; and we find a supply, estimated at 400,000*l.*, a most important sum in those days, voted by the commons to relieve the king, when his want of economy and expensive establishment had reduced him to difficulties, in giving a splendid reception to his brother-in-law, the King of Denmark.

Gun powder plot.

Union with Scotland proposed, 1606.

In a most important discussion, which occupied the attention of James's first parliament, it is somewhat surprising to find the king eager in forwarding a measure which reflects credit on his sagacity, and opposed on the part of his parliament by the most groundless fears, or still more contemptible national prejudices—this was the union of the two kingdoms. Sir Francis Bacon, the king's solicitor, moved it, and supported it with the usual powers of his great mind. He maintained, that for this desirable measure, no uniformity was necessary in the laws or religion of the two people; but that the English monarchy would become truly formidable, with Ireland subdued, Scotland united, and the navy supported. The commons were inflexible. But from the judges a declaration was obtained, which, though inferior in force to a law, was of some importance. The *post nati*, that is, all Britons born since the death of Elizabeth, were declared to be naturalized in either kingdom.

James differs with his parliament.

James's pecuniary difficulties, incurred partly by his expences in maintaining his government in Ireland, but still more by his unnecessary profusion, brought him to solicit his first parliament for another supply. They, in turn, demanded redress of national grievances, and among these the suppression of the High Commission, an ecclesiastical court, which had begun to act with severity against the

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* Particularly lordships and purveyance.

† To be given under the article GUNPOWDER PLOT.

Parliament dissolved.

puritans. The dispute terminated in the dissolution of the parliament, after James had told them "not to meddle with the main points of government, that was his craft; nor to pretend to instruct a king, who had been thirty years at the trade in Scotland, besides an apprenticeship of seven years in England."

A new parliament convoked.

In 1613, James found it necessary, for the sake of relieving his wants, to convoke another parliament. His affections had already been fixed upon a worthless favourite, Robert Carre, whom he had raised through several gradations of dignity to be Earl of Somerset. The sums which he spent on this minion, and the countenance which he shewed to him after the horrible tragedy of Sir Thomas Overbury's murder,* degraded the monarch in the eyes of his people, and aggravated the distresses of his Exchequer. His second parliament was still more refractory than the first. At their first meeting, the king proposed a supply to be granted, and then to proceed to redress of grievances; but the commons reversed the business, and began with redress of grievances. The king in wrath dismissed them, and imprisoned some of the members, who had chiefly distinguished themselves in resisting the supply—a proceeding which, as Lord Coke remarks, was the greatest violence ever done by an English monarch to the constitution.

James revisits Scotland, A. D. 1616.

James revisited his native kingdom in 1616, received the homage of her poets in a dead language, and made speeches full of puns to the members of her universities. Before his accession to the throne of England, he had indirectly, but unsuccessfully, attempted the restoration of the hierarchy in the church of Scotland. But although the Scottish bishops had been permitted to retain their temporal dignities, and a proportion of their revenue, the spoils of the ancient church were engrossed by the nobles, and those titular bishops could not resist the authority of the national presbytery. To this church James was a determined, though for some time an hypocritical enemy. He began his attack upon it by discontinuing the General Assembly, and banished those clergymen who had the spirit to remonstrate. By the royal influence, a decree of the Scottish parliament was obtained, which restored thirteen bishoprics; and, by an illegal meeting held among the subservient part of the Scottish clergy, the bishops were appointed perpetual moderators within their own presbyteries. To complete the degradation of the people, a High Commission was put in the hands of the prelates, by which they enjoyed inquisitorial powers of citing and punishing at discretion, laymen as well as clergy, for religious opinions. The vengeance of the Scots due to James for thus trampling on their religious rights, fell not upon him but his successor. It seems as if the public hatred, excited by these proceedings, had been smothered during the king's visit by the more loyal feeling of joy at the sight of their ancient monarch.

His hostility to presbytery.

After his departure, an attempt was made to enforce the observation of a ritual in worship similar to the English. The people were admonished, by proclamation, to observe the festivals, and the clergy to practise the formalities prescribed to the church. But the Scots persisted, at Christmas, in their usual occupation. In the churches, they left the sacramental tables when required to kneel, and went in crowds to other places, where the orthodox form of sitting was preserved. A people, as a spirited historian† observes, who prayed to God standing, were not likely to kneel to sacramental symbols.

The execution of Sir Walter Raleigh is one of the most unjustifiable acts of James's reign. It is probable, as Hume has asserted, that Raleigh was culpable in making the factitious gold mine in New Spain a cloak for his real intentions of plundering the Spanish settlements; but, if that fact admitted of so easy a proof as Mr Hume supposes, Raleigh ought to have been punished on that account, and on no other. An English jury, it is said, would not have brought him in guilty. If so, the sacrifice of the bravest living commander was a detestable action, even though done for the sake of prolonging peace with Spain.

But James's pacific views with regard to Spain had not entirely the merit of public advantage, they were mixed with private and selfish considerations. He meditated a marriage between Prince Charles and the second daughter of Spain, with whom he expected a very large dowry. When Frederic, the Elector Palatine, who had married the daughter of James, accepted of the crown of Bohemia, the weak father-in-law would neither break with Spain, nor had he prudence to resist, in a proper manner, the voice of his people, who called upon him to plunge into war in defence of the oppressed Bohemians, and of the Protestant cause. A new parliament being summoned, the commons voted considerable supplies, on being informed that the king had remitted some money to his son-in-law the elector; and proceeding in the most temperate manner to the examination of grievances, they represented several, which were redressed with alacrity. But the delicate business of research into abuses,‡ necessarily produced a difference of pretensions on the yet unsettled boundaries of the constitution. He dismissed the parliament after a short session, and parted with them on worse terms than he had met them; forfeiting the little popularity he had gained, from some limitations of his prerogative, by imprisoning Sir Edward Sandys for his opposition in the late session.

Before the next meeting of parliament, the Upper Palatinate had been subdued by the emperor's generals, Frederic was a fugitive in distress, and all Germany was filled with the cruelties inflicted on the Protestants. Roused by these circumstances, the commons exhorted James to abandon the intended match with Spain, and take arms for his son-in-law and the Protestant cause. However impolitic it might have justly seemed to embark in a religious war, yet a respectful and reasonable answer was certainly due to the serious appeal of the people in such circumstances. But instead of reasoning with

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[*] Though Somerset retired from Court, James bestowed a pension on him.

[†] Laing.

[‡] It was by this parliament that the great Bacon was impeached for corruption.

commons, James rebuked them for presuming to address him on the subject. When the commons rejoined to this rebuke, he gravely told them, that their capacities and understandings were not able to comprehend his measures, and reminded them of the proverb, that "the cobler should stick to his last." The rights of parliament, he concluded by saying, were not hereditary or inherent, but held by the grant and toleration of himself and his predecessors. The commons replied to this abusive and weak declaration, by a memorable document of English freedom, in which they recorded the right of parliament to advise the king in all arduous matters of government, to redress public grievances; and maintained the right of each individual in parliament to the freedom of speech in debate. James, with his own hand, tore out this protestation from the journals of the commons; and, having dissolved the parliament, imprisoned Seldon, Pym, Coke, and other eminent patriots. This parliament was remarkable for a spirited opposition in the peers; where, although the king had a predominant party, the Earls of Oxford, Essex, Southampton, and Warwick, and the Lords Sax, Selle, and Spenser, eminently distinguished themselves by maintaining resistance to an arbitrary court.

Unsupported by his parliament, James maintained a despised and feeble negotiation for his son-in-law; nor was he discouraged from it, even when the diet of Ratisbon, in spite of the remonstrances of all the Protestant powers in Germany, transferred the electoral dignity from the Palatine Frederic to the Duke of Bavaria. Two armies that fought for Frederic in Germany, were defeated by the Austrian Count Tilly, when James persuaded the palatine to disarm; the third army, at the head of which the famous Count Mansfeldt, with the scantiest supplies of money from the Palatine and the king of Britain, had supported an unequal contest with Austria. It was not from treating with the emperor, that James expected redress to his son-in-law, but from the mediation of Spain in the event of his son's marriage with the Infanta.[*] At the end of five years negotiation on that subject, the court of Spain was as lavish of promises as ever; but had not removed the great pretended obstacle of a difference in religion, by obtaining what might have soon been obtained, a dispensation from the Pope. To bring the business to a close, Digby (soon after Earl of Bristol) was dispatched to Philip IV., and one Gage was sent secretly as an agent to Rome. To render the influence of the latter more effectual with the Pope, writs were issued under the great seal, to release all Catholic recusants in England from prison; and it was daily expected that the execution of all penal laws against the professors of that religion would be stopt by royal authority. As a humane act of toleration, this edict offended the bigots of that period as an illegal stretch of prerogative; however humane in the object, it alarmed the best friends of liberty. These writs were contrary to the law, to the remonstrance of the commons, even to concessions made by the king himself, and in a general view, to the acknowledged principles of the constitution. They raised a strong commotion in the public mind, which James vainly endeavoured to assuage, by a publication in writing, beginning with the following comparison: "As the sun in the firmament appears to us no bigger than a platter, and the stars but as so many nails in the pummel of a saddle, because of the enlargement and disproportion between our eye and the object; so there is such an immeasurable distance between the deep resolution of a prince, and the shallow apprehensions of common and ordinary people, that as they will ever be judging and censuring, so they must needs be obnoxious to error and mistaking." Without convincing his subjects by the arguments which followed this sublime comparison, the king found, to his joy and triumph, that the court of Spain, after so long amusing him, seemed at last to be sincere in the projected marriage. His concessions to the Catholics at home, and his promise of toleration to the followers of the Spanish princess, when she should come to England, excited the hopes of Spain that her favourite religion would yet revive in the bosom of England. Lord Bristol himself, who had formerly opposed the Spanish match, considered it as an infallible prognostic of the Palatine's restoration; nor, indeed, was it easy to conjecture why Philip should be ready to bestow his sister with a dowry of £600,000 sterling on a prince whose demands he meant to refuse at the hazard of a war, unless we suppose that he counted on the cowardice and facility of James's temper.

Prince Charles sets out for Madrid.

But while the king was exulting in the expected fruits of his pacific wisdom, they were blasted by the interference of a worthless favourite. This was Villiers, Duke of Buckingham, who had succeeded to Somerset in the capricious affections of James, and had risen from the rank of his cup-bearer to a dukedom and the first dignities of the state. Equally worthless with Somerset, he had captivated the sovereign by the same external beauty and superficial accomplishments; but he had governed both the king and the court more intolerably. From the mediocrity of his talents, he was unfit to give weight to foreign transactions; and by his insolence, he had become odious to many at home. Yet wishing to regain his influence by foreign distinction, and envying the Earl of Bristol the reputation he had acquired by managing the Spanish negotiation, he persuaded Prince Charles to the romantic resolution of going in person to Spain, that he might throw himself at the feet of the Spanish princess, and claim her as his bride in the true spirit of knight errantry. The prince and Buckingham, (or baby Charles and Stanny, as the king used ridiculously to call his son and his favourite,) were received at Madrid with all possible courtesy, and the match, after many delays, seemed on the point of being consummated, when it was broken off on the side of the prince. This is ascribed to the influence of Buckingham, who is said to have quarrelled with the Spanish nobility, and to have hated the Infanta; but we must also take into account, that Charles had seen at Paris, on his way to Spain, Henrietta the daughter of Henry IV., and for her he conceived a passion, to which he continued faithful all his life. The match with the homely Infanta was broken off, and a war between the two countries appeared inevitable.

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[*] The king's project was to get the infanta's dowry first, and then to demand restitution of the Palatinate, lest that restitution should be held out as a compensation for the dowry. Lord Digby's instructions were, "not to make the affair of the Palatinate one of the marriage articles." But the public were taught to believe, that the recovery of the Palatinate was one of the king's chief motives for pushing the marriage.

To meet the consequences of the broken treaty, a parliament was called. Buckingham, in the peers, publicly laid the blame of the rupture on the insincerity of Spain with regard to the match, and appealing to the Prince of Wales, at the end of every solemn assertion, received a sign or word of assent. It might have required but little penetration to discover, that this was a collusion in falsehood between the prince and the favourite; but the idea of a Spanish war was so popular, and the joy so great at the breach of a Catholic alliance, that Buckingham for a time grew popular, and was hailed even by Sir Edward Coke, as the saviour of the nation.

War with Spain. 1623.

James lamented to his parliament, that, after having borne so long the name of the Pacific Monarch, he should be plunged into war in his old age. He demanded supplies to meet the event, but offered that the war funds should be managed by a committee appointed by parliament. The commons took him at his word, with respect to the management of money, but voted a smaller sum than he had demanded. Availing themselves too, of the more submissive character which he began to discover in his old age, they corroborated their power of impeachment, and obtained a declaratory act against monopolies.

The earl of Bristol committed to the Tower. 1624.

Troubled at the prospect of war, the king now longed for the arrival of the Earl of Bristol, an enlightened statesman, who had managed his interests at the court of Spain with great fidelity and intelligence. But Buckingham was conscious of the falsehoods he had told respecting the Spanish treaty, and sensible that Bristol could expose them. From the absurd weakness of his master, he obtained an order for Bristol's commitment to the Tower; and though he was soon released, he was ordered to retire to his country seat, and to be absent from parliament. Prince Charles and Buckingham had the meanness and tyranny to offer him the king's favour, if he would acknowledge his conduct to have been wrong, an offer at which he spurned with proper spirit; but though the king expressed his opinion of his treatment being unjust, he had now no will of his own, and could never obtain an interview with Bristol.

Affairs on the continent.

The United Provinces were at this time governed by Prince Maurice, who, on the breaking of the truce with Spain in 1621, took the field against the celebrated Spinola; but the force of the latter was so much stronger, that Maurice was obliged to act on the defensive. A reinforcement of six thousand men, who were now expected from England, under the young Lords Oxford, Southampton, Essex, and Willoughby, promised an important accession to his strength. It was determined also to reconquer the Palatinate, a state in the heart of hostile Germany, and cut off from all communication with England. Count Mansfeldt was taken into pay, and twelve thousand Englishmen were levied by press throughout the kingdom, whose bravery, it was hoped, would penetrate the whole continent, and restore Ferdinand to his throne.

France did not behold with indifference the extended encroachments of the house of Austria, nor without satisfaction, the combination of England and her ally to oppose them. But the first project of Louis and Richelieu was to humble the Hugonots. The proposal of a marriage, however, between Prince Charles and the Princess Henrietta, was favourably received on the part of France. The same terms as to Catholic toleration were agreed to by the English court, which had been promised in the negotiation for the Infanta, and the new treaty was signed at Paris on the 16th of November 1624. The marriage portion promised by Henrietta was 800,000 crowns; and it was stipulated, that the prince should settle a jointure of 60,000 crowns a year. Fatally for the house of Stuart, the French princess was to have the education of the children till thirteen years of age.

Dec.

During the whole negotiation, promises had been made, (though in general terms,) that the English troops should have a passage through France, and even be joined by succours for the Palatinate; yet when Mansfeldt's troops sailed to Calais, no orders had arrived for their admission. They sailed to Zealand, but the States had some scruples to admit them, on account of the scarcity of provisions. A distemper in the mean time broke out in the fleet, which carried off one half of the forces, and as the rest were too few to think of reaching the Palatinate, the expedition was given up. James, however, did not live long to witness a state of affairs so foreign to his pacific dispositions. About the middle of March he was seized with a tertian ague, and though such a disorder was not thought dangerous in the spring, he died on the 27th of March, in the 59th year of his age, after a reign over England of 22 years. His reign over Scotland was almost of equal duration with his life.

Death James

James, the son of Queen Mary and Lord Darnley, the handsomest couple of their age, was homely in his person, and ungainly in his manners. He possessed learning and some ingenuity of speculation in moral and general subjects, but neither his judgment nor morals were of a high cast. Without the dignified reserve which should accompany a proud king, or the art of condescension which makes affability popular, he blended a vulgar stateliness and a familiarity, so incongruously together, that during his whole reign he reminds us more of some mock king in a farce, than of a real one on the theatre of history. His pretensions to arbitrary power, whilst he had not a regiment of guards to enforce them, betray such ignorance of human nature, and so much of the vulgar and childish notion of kingly right, that they lose all resemblance to lofty and imposing ambition.

The colonization of North America, is the most memorable circumstance in the history of James's reign. Elizabeth had done little more than given a name to Virginia: the feeble colony which she planted was abandoned entirely. Even after Argal had discovered a more direct tract to that continent, and after a new colony had been settled in James's reign, there were not alive more than 400 colonists in 1614. But by the culture of tobacco they soon acquired wealth, and extended their numbers to other places.

Charles I. succeeded to the same favourite, the same ministers, and council, which his father had possessed, and unhappily inherited the same principles in government. It was not improbable if James had lived, that Buckingham, whose influence had for some time fastened rather on the weakness than on the affections of the old king, would have been dismissed; but his power was established by the ascension of Charles, at the time when his temporary popularity, obtained by the rupture with Spain, began to decline, or rather was changed into the most inveterate dislike on the part of the nation.

The marriage treaty with France had been concluded in James's lifetime. It was solemnized at Paris with great magnificence, where the Duke of Chevreuse performed the part of proxy for the king of England. Buckingham was sent over to France to conduct the queen home. She arrived at Dover on the 12th of June, and the marriage was consummated next day at Canterbury. On the 16th, their Majesties entered into London; and the new parliament met next day. Charles inherited a scanty treasury and revenues, which had been inadequate even to support a peace establishment. The war, though produced by a freak of his own or of Buckingham's, had been sanctioned by the voice of the nation and of the parliament. The new parliament itself, chiefly composed of Puritans, never pretended to advise pacific measures, and must have been conscious that the king could neither recede from war with honour, nor prosecute it with advantage, without their advice and assistance. To support this war, for which the nation had clamoured for so many years, to enable Charles to wrest the Palatinate from the victorious Ferdinand and the mighty armies of Austria, and to cope with Spain, the richest monarchy in Europe, they gave to his earnest intreaties a supply of 112,000 pounds. The excuses that have been alleged for this insulting parsimony, are the public hatred at Buckingham, and the discovery of the war having been produced by the artifices of that favourite. This apology is insufficient: if the war was found impolitic or unnecessary, the commons should have openly told the king to abandon it. If it was necessary, they ought not to have avenged themselves for a lesser grievance, by inflicting upon the nation a greater.

Charles was obliged, by reason of the plague, to adjourn the parliament for a few weeks in the summer, but he re assembled them at Oxford, and implored them to assist his necessities. Besides his German warfare, he had a subsidy to pay to his ally the king of Denmark; and, independent of debts contracted by himself and his father, the expenses of the war, including the defence of Ireland, amounted annually to a million and one hundred thousand pounds. Though a fleet and army were lying at Portsmouth in want of pay and provisions, the commons refused further aid. James had before his death, promised to lend the king of France one ship of war and seven armed vessels. They were borrowed on pretence of being employed against the Genoese, who, as the allies of Spain, were sufficiently odious to the English to make such an use of them popular. Louis afterwards persuaded Charles to be allowed to employ them as he pleased, and they were sent under vice-admiral Pennington to Dieppe, to assist against the Hugonots. Pennington being himself unwilling for the service, gave way to the resolution of his crews not to serve against Protestants. On returning to the Downs, he was persuaded again to sail for France, on pretence that the French king had made peace with the Hugonots; but the fleet finding themselves deceived, deserted him. When the news reached the commons at Oxford, they applauded the conduct of the sailors, forgetting that if they meant to be at war with Spain, they were fighting the battles of that power, by assisting the Hugonots, who were in secret alliance with his Catholic majesty. They renewed their clamours against popery, demanded the punishment of Catholics for assembling to celebrate the rites of their religion, and remonstrated against some pardons lately granted to priests, who had been convicted of that offence. They also enacted laws for the stricter observance of the Sabbath, (as it was now puritanically called,) and petitioned the king for replacing such able clergymen as had been silenced for want of conformity to the church. The king availed himself of the appearance of the plague at Oxford, to dismiss a parliament, who gave him nothing but complaints, and by dissolving, instead of proroguing them, he marked his displeasure at their conduct.

Parliament dissolved.

By issuing privy seals for borrowing money, the king was enabled to equip a fleet of 80 ships, with an army of 10,000 men. Cecil, Lord Wimbleton, sailed with these to Cadiz; but either finding it impossible, or neglecting to attack the valuable ships of the Spaniards in that harbour, he only landed the army. After storming a fort, where they found a store of wine, the men got intoxicated, and were obliged to be reimbarked. They would have proceeded to intercept the Spanish galleons on their way to Spain, but the plague breaking out on board the fleet, it returned to England, and the issue of the expedition served as another cause of public discontent.

Fruitless expedition to Cadiz.

Obliged once more to have recourse to a parliament, Charles thought of diminishing the number of popular leaders by the artifice of making four of them, Sir Edward Coke, Sir Robert Philips, Sir Thomas Wentworth, sheriffs of the counties; a situation supposed to be incompatible with a seat in parliament. This measure, without attaining its object, exposed the weakness of the court, and put the commons more upon their guard. They voted the king a supply of two subsidies, but by removing the passing of that vote into a law till the end of the session, they held out an undisguised threat of withholding it, if their demands should not be satisfied. The first exertion of their power and resentment was directed against Buckingham.

The orders of Charles to the Earl of Bristol, not to attend in parliament, had not induced that spirited nobleman to comply with so arbitrary an injunction; and the king, provoked at his refusal, directed his attorney-general to enter an accusation of high treason against him. Bristol, by way of recrimination,

Arbitrary proceedings of Charles.

Arbitrary proceedings of Charles.

impeached Buckingham with the same crime in the lords, while the commons were attacking him from another quarter. Their impeachment never came to a full determination; but it is remarkable, that Buckingham's accusers never adopted Bristol's charge of misconduct in the Spanish treaty, but taxed him with offences from which he found little difficulty to exculpate himself; such as administering physic to the late king without consent of his physicians. While under this impeachment, Buckingham was chosen chancellor of the University of Cambridge, and the king publicly thanked the university for their choice. When the commons resented, and loudly complained of this affront, the lord keeper commanded them, in the king's name, not to meddle with his minister and servant Buckingham, but to finish the subsidy-bill, otherwise they might expect to sit no longer. This threat was followed by another, that the king, if supplies were still refused, would be obliged to try new counsels. To strip this imprudent menace of all ambiguity, Sir Dudley Carleton explained it, by allusion to those monarchs in Christendom who had been obliged, by the turbulence of their subjects, to overthrow parliaments altogether. Adding injury to indignity, the sovereign next ordered two members of the House of Commons, Sir John Elliot and Sir Dudley Digges, the chief managers of the impeachment against the duke, to be thrown into prison, on pretence of seditious expressions; but, as those expressions could not be proved, and the commons demanded their liberation, he was obliged, with a bad grace, to release them. With similar regard for their privileges, the House of Lords claimed and obtained the liberty of Lord Arundel, whom the king had thrown into the Tower. Mixing religious with political subjects, the commons, as usual, complained of the increase of popery, and demanded the expulsion of a list of recusants from offices, (mostly insignificant individuals). The king had before promised compliance with the wishes of the house on this point, but, when the supplies were refused, he imagined himself released from the obligation. Besides this demand, the commons intended to petition for the removal of Buckingham from his majesty's councils, and were preparing a remonstrance against the levying of tonnage and poundage without consent of parliament. But their session was ended by dissolution, before they had time to conclude one act. The House of Peers in vain interceded, that parliament might be allowed to sit some time longer. Charles replied in anger, "*not a moment longer;*" and the king and the commons, at their separation, published each an appeal to the nation. The commons, though culpable in some points, had not hitherto trespassed the bounds of the constitution. Charles had evidently done so, but his affairs were yet retrievable, if he had dismissed a worthless favourite; fulfilled some of his promises respecting recusants; abandoned the war with Spain; and entrenched himself within the limits of legal prerogative. Against the solid power of the represented people he had still a barrier to oppose, in the unquestioned rights of royalty; but in proportion as he stretched the prerogative he weakened it. To fright the constitutional attacks of the commons with usurped prerogative, was to oppose a shadow to a substance. The rights on which he now meant to act, in pursuing his *new counsels*, certainly had once been enforced by the crown, but they could now be only recalled as the phantoms of ancient usage.

Proceeding, therefore, to levy money independent of his parliament, Charles openly granted a commission to compound with the Catholics for dispensing with the penal laws. From the nobility and the city he required a loan of £100,000: the former gave it slowly; the latter refused it. The maritime towns were ordered to furnish shipping. For some time the supplies were exacted with moderation; but, on the news of Tilly having defeated the King of Denmark, a *general loan* from the subjects became necessary, for the more strenuous exertions in the war.

It was in vain that the followers of the court, and their preachers in the pulpit, enjoined submission to this loan, as a part of the duty of passive obedience. A spirit of resistance rose among the people; many refused their loans, and some were active in rousing their neighbours to insist on their common rights. By a warrant of the council, these were thrown into prison, although such as petitioned the king were commonly released. Five gentlemen alone, Sir Thomas Darnel, Sir John Corbet, Sir Walter Earl, Sir John Hevingham, and Sir Edmond Hambden, had the spirit, at their own expence and hazard, to defend the public liberties, and to demand releasement, not as a favour from the king, but as their right by law. The question was brought to a solemn trial before the Court of King's Bench. By the debates on this momentous subject, it appeared incontrovertible to the nation, that their ancestors had been so jealous of personal liberty, as to secure it against arbitrary power by six several statutes, and by an article of the great charter itself. The Kings of England, it is true, had often eluded those laws; but Charles was astonished to find, that a power, so often exercised by his predecessors, was found, upon trial, to be directly opposite to the clearest laws, and supported by few undoubted precedents in courts of judicature. Sir Randolph Crew, chief-justice, had been displaced, as unfit for the purposes of the court. Sir Nicholas Hyde, esteemed more obsequious, had obtained that high office. Yet the judges, by his direction, went no farther than to remand the gentlemen to prison, and refuse the bail which was offered. Heathe, the attorney-general, insisted, that the court should enter a general judgment, that no bail could be given upon a commitment by the king or council. But the judges wisely declined complying. To exasperate the nation still farther, the soldiers of the army returned from Cadiz were billoted upon private houses, instead of being quartered at the inns or public houses; and the refusers of loans had the greatest share of those disorderly guests. Men of low condition, who shewed a refractory disposition, were pressed into the army or navy; and some of higher rank were sent aboard on pretence of public duty. Martial law was proclaimed, to appease that part of the discontent which arose from the licentiousness of the soldiery: a remedy still more offensive than the evil.

If there was a chance of safety for Charles, it lay in abandoning the Spanish war; but, instead of this, while embroiled with his own subjects, and with the half of Europe for his enemies, he wantonly added France to the number: a temerity really bordering on madness. This, too, was a war of Buckingham's creating; and the motives to it would appear incredible, if the violence and profligacy of his character were not known. At the time when Charles married, by proxy, the Princess Henrietta, Buckingham had appeared at Paris, to grace the scene of splendid festivity: a scene the best fitted for his superficial accomplishments; and had attracted admiration from the Queen of France herself. In the spirit of ambitious gallantry, he was preparing to return upon a new embassy, after he had brought Henrietta to England; when Richelieu, the minister, himself a disappointed lover of the queen, occasioned a message from France, to decline the honour of his visit. In a romantic passion, Buckingham swore that he would see the queen in spite of all the power of France, and determined to embroil the two kingdoms in war. After several unavailing provocations to make the French declare war,† he persuaded the king openly to espouse the cause of the Hugonots, whose leader, the Duke de Soubize, was then in London. The foolish favourite himself set sail with 100 ships and 7000 men to assist the Hugonots of Rochelle, who, uninformed of his designs, shut their gates against him. Instead of attacking the fertile and defenceless isle of Oleron, he bent his course to Rhe, which was well fortified. After allowing the garrison of St Martyn to be well victualled, by his negligence, he first attempted to starve it; and, despairing of that object, sacrificed his men in storming the place without having made a breach. The small fort of Prie, which he had overlooked in his advance, poured out a force on his retreat, which converted it into a route; and, having embarked with a third part of the force which he had taken out, he returned to England covered with disgrace.

Buckingham and his master might well tremble at the prospect of meeting a third parliament, after having squandered the money, illegally extorted from a nation already on the point of insurrection, in schemes of ambitious folly and disaster: But, in such a state of men's minds, it was unsafe to attempt raising money without a parliament.

From the king's declaration at opening the session, that, if the parliament would not do their duty in contributing to the necessities of the state, he must, in the discharge of his conscience, use the means which God had put into his hands: the commons foresaw, that, upon the first disagreement with his majesty, they might expect to be dismissed. Their decency and dignity, however, rose with the advantageous ground which so imprudent a threat afforded them.. At the same time, while cautious, they were vigorous; and the most enlightened views of the rights of the people, the most definite ideas of civil liberty, and the most spirited remonstrances against the recent arbitrary measures of taxation and imprisonment, were held up in all the venerable and primitive simplicity of our language. The necessity of redress of grievances being admitted by the whole house, even by the court members, a vote was passed against arbitrary imprisonments and forced loans. Five subsidies were voted to the king, which, though inferior to his wants, were gratefully received. When his majesty's thankfulness was announced, the Duke of Buckingham's approbation was mentioned by a crown minister; but the house treated the conjunction of his name with strong disapprobation: a symptom that real respect for royalty was not yet extinguished, which, if Charles had been docile, might have taught him an important lesson.

The supply, though voted, was not immediately passed into a law; the commons resolved to employ the interval in obtaining the sanction of the whole legislature to their petition of rights against forced loans, benevolences, taxes without consent of parliament, arbitrary imprisonments, the billeting of soldiers, and martial law. The bill was called a Petition of Right; because it was only a confirmation of the ancient constitution, not an assumption of a new one. The peers leaning, in this question, to the side of royalty, proposed to moderate the petition of right, by adding to a general declaration of the rights of property and person; that, in case the sovereign be, from absolute necessity, obliged to imprison a subject, "he shall be petitioned to declare, that, within a *convenient time,* he shall, and will express the cause of imprisonment; and will, upon a cause so expressed, leave the prisoner to be tried by the common law of the land." On a conference being held between the two houses, the commons refused to annihilate their petition, by such a compromise. The king wished no less than the lords, to cheat the national spirit by some such general declaration. He did his utmost to evade the petition, by repeated messages to the house; in which he offered his royal word, that there should be no more infringements on the liberty of the subject. These promises had no effect on the commons, who pressed their bill upon the upper house. At last it passed it also, and only waited the royal assent. That assent, the king had neither the courage to give nor to refuse decidedly. Coming to the House of Peers, and being seated in his chair of state, instead of giving the expected concise assent, he made the following answer: "The king willeth, that right be done according to the laws and customs of the realm, and that the statutes be put into execution, that his subjects may have no cause to complain of any wrong or oppression, contrary to their just rights and liberties; to the preservation whereof, he holds himself in conscience, as much obliged as of his own prerogative."

Petition of right,

Passed by both houses of parliament.

The royal assent refused to it

Impeachment of Dr Mainwaring.

The commons returned in the highest indignation at this answer. Their displeasure was first vented on the clergyman, Dr Mainwaring, who had preached, and, by special command from the king, had published a sermon containing doctrines subversive of all civil liberty. He was impeached by the commons, and sentenced by the peers, to be fined, imprisoned, and suspended. But the session was no sooner over, than Charles pardoned and promoted him to a considerable living; and, at the distance of a few years,

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† By making Charles dismiss the queen's French domestics, and encouraging the English ships to seize on those of France.

The royal assent granted to the petition of right.

made him bishop of St Asaph. From Mainwaring, the commons proceeded to censure Buckingham; and the tempest of public hatred seemed ready to burst over his head, when it was diverted by the king's consenting to a joint application from both houses, that the Petition of Right should be sanctioned. When the words of royal assent had been pronounced. "*Let it be law as is desired*," the house resounded with acclamations; and the whole nation heard of them with joy.

Proceedings of the commons in remedying abuses 1628.

June 26.

Buckingham assassinated

The commons, however, had not yet done with remedying public grievances. They called for the abolition of a commission, which had been lately granted to 33 crown officers, for levying money by impositions or otherwise, in which *form and circumstance* (as it was expressed in the commission) *were to be dispensed with, rather than the substance be lost or hazarded.* They noticed another commission for bringing 1000 German horse to England, supposed to be levied for enforcing impositions. They inveighed against the conduct of Buckingham; and asserted, that the levying of tonnage and poundage was a violation of the constitution. To prevent the finishing, and presenting this remonstrance, the king came suddenly to parliament, and ended the session by prorogation. All the subsidies voted by parliament were spent in equipping a fleet and army, with a view to repair an ineffectual attempt, made by the earl of Denbigh, to relieve Rochelle. While Buckingham was superintending the intended expedition at Portsmouth a fanatical, and vindictive man of the name of Felton, who had lately served as lieutenant in the duke's army, avenged his own and the nation's quarrel, by plunging a knife into the favourite's breast as he turned from speaking with Soubize, and some Hugonot officers, to Sir Thomas Fryar, over whose shoulder the murderer struck his blow. Buckingham cried out "the villain has killed me;" and, pulling out the knife, breathed his last. As the Frenchmen had been remonstrating with the duke, the first suspicion fell upon them; but a hat was found near the door, with a paper, disclosing the motives of the deed, and a man, without a hat, was seen walking composedly before the door, who, being seized as the murderer, answered, "I am he." Charles urged, that Felton should be tortured, to discover his accomplices; but the judges declared, that the practice, though formerly usual, was altogether illegal.

Unsuccessful attempt to relieve Rochelle.

After Buckingham's death, the command of the fleet and army was conferred on the earl of Lindsay, who attempted to relieve Rochelle, but without success. That city, hopeless of relief, submitted to their Catholic countrymen, even in sight of the English fleet. By the death of Buckingham, neither pretexts nor real causes for complaint were removed from the commons. The royal favour shewn to Mainwaring and other clergymen, obnoxious for similar reasons; the inhuman and arbitrary punishments of the Star Chamber; and, above all, the subject of tonnage and poundage, afforded unexhausted sources of controversy and remonstrance. When Charles opened the session of 1629, he had foreseen, that the declarations of the commons would be renewed on this last topic; and absolutely conceded, that he never considered the duties of tonnage and poundage as any other than a gift from his people. But the commons were not satisfied with a verbal confession, they insisted, that he should entirely desist from levying these duties; a practical consequence which, it must be allowed, most naturally followed from such a concession; and which, it is not surprising, that the assertors of liberty were anxious to follow out, in treating with a monarch who was evasive in confirming all concessions, and the munificent patron of the preachers of passive obedience. Amidst political fermentation, the zeal of religion was not dormant. Whilst the current of public belief was running towards Puritanism, the favourers of the established church were strongly tinctured with Arminianism; a creed now generally adopted in the Church of England, but, at that time, held in detestation almost equally with Popery. Among the Puritans, indeed, there were many who were distinguished, not by religious, but by political sternness of principle; and, unfortunately for the Arminian, it was generally coupled with slavish principles in politics, because Laud, Neil, and the other bishops, supposed to be tainted with that faith, were the strenuous supporters of passive obedience.

Sir John Elliot having framed a remonstrance in the commons against tonnage and poundage, the speaker, Sir John Finch, said, that he had a command from the king to adjourn, and put no question. The whole house was in an uproar; the speaker was forcibly held in his chair by Hollis and Valentine, till a remonstrance was passed by acclamation. Papists and Arminians, and those who should levy tonnage and poundage, were declared capital enemies to the commonwealth. The doors being locked, the gentleman usher of the House of Lords, who came from the king, was shut out till the remonstrance was finished. By the king's order, he took the mace from the table; and parliament was dissolved in a few days. By an act of ill-timed severity, the king commanded some of the leading members of the house* to be thrown into prison for sedition; and three others were fined, and imprisoned by the court of King's Bench, at the instance of the crown.†

It seemed, at last, to Charles, to be high time to conclude a war, begun without necessity, and conducted without glory. A treaty was accordingly signed with France; and the Hugonots, as might be expected, were abandoned. Peace was afterwards concluded with Spain, without any stipulation in behalf of the palatine; but a general promise of good offices for his restoration from the court of Madrid. Charles, at this time, joined his good offices to those of France, in mediating between Sweden and Poland; in hopes of gaining the former to the cause of his brother in-law. Gustavus did, indeed, adopt the cause of the German Protestants, and accepted of several thousand men, raised at Charles's expence, chiefly in Scotland, under the command of the Marquis of Hamilton; but, when he had overrun Germany, he refused to restore Frederic, except on conditions of dependence on himself.

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* Sir Miles Hobart, Sir Peter Hayman, Selden, Coriton, Long, and Strode.

† Sir John Elliot, Hollis, and Valentine.

By an expedient often adopted by princes, to weaken popular power, Charles adopted his ministers from the opposing party, that he might convert patriots into supporters of prerogative, by sharing it with them. Sir Thomas Wentworth, now created Lord Strafford, was made president of the council of York; deputy of Ireland; and was, in fact, the king's chief counsellor. Sir Dudley Diggs was created master of the rolls; Noy, attorney general; Littleton, solicitor general. Unfortunately, in religion, the same change of advisers was not introduced. Laud, who had become odious for loading the church with ceremonies most disgusting to the people, who was suspected of being more than half a Catholic in his heart; and who, in zeal, intolerance, and arbitrary principles, was as bigotted as any Catholic, had the chief influence over the king in ecclesiastical affairs.

Tonnage and poundage continued to be levied by the royal authority alone. The former additional impositions were still exacted; even new impositions were laid on several kinds of merchandise. The custom-house officers received orders from the council, to break into any house, warehouse, or cellar; to search any trunk or chest; and to break any bulk in default of payment. Compositions were made with Popish recusants, which became a regular part of the revenue. Compositions were also levied from those, who, by an ancient statute of Edward II. were obliged, from possessing a certain income, to receive the expensive honour of knighthood.† A stamp-duty was imposed on cards; a new tax, which, of itself, was liable to no exception, except the manner of its imposition.

The council of York had been first erected, after a rebellion, by Henry VIII. without authority of parliament, and had long acted chiefly as a criminal court. Innovations had been introduced into it by James. Sometimes Charles gave it a large and, in some respects, discretionary jurisdiction, which, though possibly meant to save these northern counties the trouble of sending every cause to Westminster hall, in the end, put them out of the ordinary course of justice, and produced several irregular acts, which were, at this time, complained of. But the Star Chamber was the most intolerable of all tribunals, and encroached on the jurisdiction of other courts. Its punishments were enormous. Sir David Foulis was fined £5000, for dissuading a friend to compound for knighthood. Prynne, a barrister of Lincoln's Inn, for reviling plays, hunting, public festivals, &c. and for blaming the hierarchy, and the new superstitions of Laud, in a book which he published, was condemned to be put from the bar, to be pilloried in two places, to lose both his ears, pay £5000 to the king, and be imprisoned for life. One Allison, for reporting that the Archbishop of York had incurred the king's displeasure, by asking toleration for the Catholics, was sentenced, by this tribunal, to pay L.1000 to the king, to be whipped, and to stand in the pillory four times.

The tax of ship-money revived.

The obnoxious tax of ship-money was revived in 1634. The first writs of this kind had been directed only to sea-port towns, but it was now levied over the whole kingdom. The money was entirely laid out upon the navy; and the effects of it were felt at the distance of a few years, when 60 sail were equipped by the earl of Northumberland, who compelled the Dutch to pay L. 30,000 for a year's licence in fishing in the British seas: and when a squadron, that was sent against Sallee, contributed to destroy that receptacle of pirates. But greater triumphs of the English flag than those would have been an inadequate compensation to the people, for the arbitrary manner in which the money that procured them had been levied.

Charles visits Scotland, June 8. 1633.

In 1633, Charles visited his Scottish kingdom, where his reception was affectionate and joyful. His coronation was succeeded by a parliament, which sat as usual only two days. Their supplies were liberal and unprecedented. A land tax of £400,000 Scotch, and the sixteenth penny of legal interest, were granted for six years. An indefinite prerogative had been granted by the Scottish parliament to James, together with the power of prescribing robes for judges, and apparel for churchmen. When Charles sought them to confirm this latter power, a power which was to sanction the introduction of the cope and the white surplice, things abhorred by the Scottish nation, Lord Melville, an aged nobleman, exclaimed aloud, "I have sworn with your father, and the whole kingdom, to a confession of faith, in which the innovations intended by these articles were solemnly abjured." Charles retired disconcerted for a moment at this answer, but returning, commanded the parliament not to deliberate, but to vote, and shewing a list of their names, "Your names are here, (said he,) and I shall know to-day who will do me a service." The votes were collected, but there is little reason to doubt, falsely reported at the king's instance. The Earl of Rothes, who questioned the truth of the report, was told by the king, that if he arraigned the Lord Register of a false report of the votes, it should be at his peril. The peril, if his accusation could not be clearly established, was death. The late affection of the Scots was, by such conduct, changed into general mistrust. After the king's departure, an episcopal see was erected at Edinburgh, with a diocese extending from Forth to Berwick. The influence of Laud was scarcely less powerful in the Scottish than in the English church; and by his influence, the preachers of Arminian principles became numerous in northern pulpits. The breath of this new controversy fanned the rising flame of discontent.

1634.

And attempts to establish Episcopacy.

Lord Balmerino was one of the nobles, who had dared, in the late Scottish parliament, to speak and vote with independence. A temperate and submissive petition had been prepared by those Scottish patriots, in order to exculpate themselves from the imputation of having resisted the prerogative, and to deprecate the operation of those articles from which

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† This law had been used by Edward VI. and Elizabeth as an expedient for raising money. Hume says, that one reign had elapsed since its revival; but that is a mistake, for Rapin mentions its revival under James.

Trial of Lord Balmerino.

Emigration of the Puritans prevented.

they had dissented. But when the design was intimated to Charles, and the royal displeasure was signified, the petition was abandoned even before it was subscribed. A copy retained by Balmerino, was, however, surreptitiously transcribed, and communicated to Hay of Naughton, the personal enemy of that nobleman. Hay remitted it to the archbishop of St Andrews, and Balmerino was imprisoned and brought to trial for its contents. He was not the author of the paper; he had interlined, with his own hand, the passages which he had thought not sufficiently humble in a submissive and inoffensive petition. A jury, industriously selected of such men as were thought desirous of Balmerino's death, were set upon his trial; yet even these were not unanimous. By a majority of suffrages, he was found guilty of having concealed the paper, and sentence of death was immediately pronounced upon him. The Scotch, however, were in such a ferment, that fear extorted a pardon, which justice and clemency would have denied. The people of Edinburgh had held consultations for his release. It was determined to burst open the prison, or, if that attempt should miscarry, to take revenge on his judges, and the eight jurors by whom he had been convicted. Traquair, who had been foreman of the jury, terrified at the danger, soon pleaded at court the policy of sparing Balmerino. While the Scotch were thus suffering violation in their religious rights, the Puritans of England were discontented at the prospect of civil as well as religious oppression, and would have gladly sought a refuge among the deserts of North America, from their restraints and persecutions. Some of them did escape to the new world, and laid the foundation of a free government, which has lasted ever since. But even the liberty of emigration was refused, and eight ships, ready to sail with emigrants from the Thames, were detained. In one of these ships were John Hambden and Oliver Cromwell. In the absence of parliament, the arbitrary principles of the court continued to be put in practice, by the violation of the petition of rights in every article; and when men were selected for imprisonment by the king and council, they were refused bail or releasement.

John Hambden prosecuted for the payment of ship-money.

1637.

John Hambden had been rated at twenty shillings of ship-money, for an estate which he possessed in Buckinghamshire. The judges had already declared, that the king might impose the tax of ship-money, in cases of necessity, and that he was sole judge of that necessity. Hambden, not dismayed by this illegal declaration, nor by all the power of the crown, resolved to stand a legal prosecution, rather than submit to the imposition. The case was argued during twelve days in the exchequer chamber. The prejudiced judges (four excepted,) gave sentence in favour of the crown. Hambden, however, obtained by the trial, the end for which he had generously sacrificed his safety and his quiet. The nation was roused from its lethargy, and their indignation was thoroughly awakened against the arbitrary designs from which the tax had proceeded, and the prostitution of judicial authority, which gave sanction to those designs.

Charles attempts to force a liturgy into the Scotch church.

We have already seen in what state of mind Charles had left his Scottish subjects. By an unfortunate attempt to force a liturgy into their national church, he called their secret discontents into open action. The liturgy destined for Scotland was a little different from the English, but in receding from that service, it approached more to the forms of popery,—a religion which was never named in Scotland without horror. During the whole week before the new service was to be performed in the churches of Edinburgh, the people were agitated by discourses and pamphlets. On Sunday the 23d of July, the dean of Edinburgh prepared to officiate in St Giles's, and the bishop of Argyle in the Grey Friars' church; and to increase the solemnity, each was attended by the judges, prelates, and a part of the council. The congregation in St Giles's continued quiet till the service began, when an old woman, impelled by sudden indignation, started up, and exclaiming aloud against the supposed mass, threw the stool on which she had been sitting at the dean's head. The service was interrupted by a wild uproar, and but for the interposition of the magistrates, the bishop might have been sacrificed at his own altar. When most of the people had retired, and the turbulent had been excluded, the doors were locked, and the service was resumed; but was soon overpowered by the people from without, who burst open the doors, broke the windows, and rent the air with exclamations of, "A Pope, an Antichrist, stone him, stone him!" With a few exceptions, the prelates were equally unsuccessful throughout all Scotland in imposing the liturgy.

The Scottish privy council plainly perceiving the resolution of the whole nation, represented to Charles the difficulty of enforcing the new rites. Their remonstrance had no effect, but to produce a threat from the sovereign of removing the seat of government from Edinburgh. In the mean time, a conflux of supplicants against the liturgy, from all Scotland, arrived at Edinburgh; and an accusation against the prelates was subscribed by all ranks, from the peer to the peasant. The citizens of Edinburgh, exasperated at the threat of the seat of government being removed, surrounded the town council house, and demanded the replacing the ministers who had been ejected for refusing the liturgy. In this tumult, the principal citizens, and even the wives and sisters of the magistrates, took a share.

The council, uninstructed by Charles, conceded a most important point to the supplicants, in permitting the celebrated Tables, a representative body of nobles, gentry, clergy, and burgesses, to sit permanently in Edinburgh, while the multitude dispersed to their homes. An evasive answer from court was insufficient to satisfy the public mind. A formal revocation of the liturgy was required, and the accusation of the prelates proceeded to be urged by the Tables. A royal proclamation was issued, denouncing the supplicants as traitors; but the effect was only to summon once more the whole body of those men around their chiefs, and the proclamation was every where met by a protest, held equally legal and sufficient to counteract its effects.

But the great æra in this religious union of the Scotch, was the renewal of the national covenant, first framed at the Reformation, when the lords of the congregation, by their bond or covenant, underto the protection of the infant church. This renewed a memorable bond, by which the subscribers solemnly renounced Episcopacy as well as Popery, and engaged to defend each other, and to support the sovereign in the preservation of religious liberty; and was prepared by Alexander Henderson, the leader of the clergy, and Archibald Johnston, afterwards of Warriston, an advocate. It was revised by the Lords Balmerino, Loudon, and Rothes. It was sworn to by nobles, gentry, clergy, and burgesses, and by thousands of all denominations, after solemn exhortation and prayer in the Grey Friars' church of Edinburgh. Throughout Scotland, it roused and agitated the people by a zeal unfelt since the Reformation.

The king began to think of temporizing with the Scotch when it was too late. He sent the Marquis of Hamilton with authority to treat with the Covenanters. He required the covenant to be renounced and recalled. The Covenanters answered, that they would sooner renounce their baptism. Hamilton returned to London; made another fruitless journey with new proposals, and was again sent back by the Covenanters. After some negotiation, Charles made concessions, which, at an earlier period, might have proved satisfactory. He recalled the canon's liturgy and the high commission, suspended the articles of Perth, and seemed only anxious on any terms to continue the bishops. But the Scotch could not now think themselves secure, without the absolute abolition of Episcopacy. A weak attempt was made amidst these disputes to substitute a counter-covenant, in which the renunciation of Popery, and submission to the royal authority, were combined; but the new bond was signed by few, and with little zeal. An assembly, which Charles had agreed to grant to the Scottish religionists, was held at Glasgow; an assembly, which, from a large accession of the nobility and gentry, far exceeded in influence what the ecclesiastics alone could have possessed. As a preparative to the abolition of Episcopacy, there had been laid before the presbytery of Edinburgh, and solemnly read in all the churches of the kingdom, an accusation against the bishops, of heresy, simony, bribery, perjury, cheating, and numerous other crimes, to the suspicion of which the lax lives of the episcopal clergy had but too much exposed them. The bishops sent a protest, declining the authority of the assembly. The commissioners, too, protested against the court as illegally constituted, and in his majesty's name dissolved it. But this measure was foreseen, and little regarded. The court still continued to sit. All the acts of assembly since the accession of James were, on strong grounds of reason, declared null and void; and with these the acts of parliament regarding ecclesiastical affairs. Thus Episcopacy, the high commission, the articles of Perth, the canons, and the liturgy, were abolished, and declared unlawful; and the whole fabric which James and Charles had been rearing with so much industry, fell to the ground. Of 14 bishops whom the assembly degraded, eight were excommunicated, four were deposed, and two were merely suspended from ecclesiastical functions. These were bold proceedings. Yet it may still be doubted if, with so much justice on their side, they intitled the sovereign to think of coming to the last extremities. But Charles's preparations for war were by this time far advanced; it appears indeed that he anxiously solicited the rupture with the assembly, to justify having recourse to arms. By economy he had amassed about £200,000; loans were procured from the nobility; his queen incited the Papists, and Laud instigated the clergy, to contribute to this Episcopal war. The nobility were summoned to attend their sovereign at York. The Scotch had not been idle in meeting the hour of danger. The covenant had been received by Scotchmen abroad as well as at home. Lesly, a commander distinguished in the Swedish service, was recalled, to lead the Covenanters at home, and he was followed by many experienced officers, who had served Gustavus. Arms, ammunition, and artillery were provided, and the people were trained to the use of them. After France and Holland had entered into a league against Spain for the partition of the Netherlands, England had been invited to a neutrality. But Charles, in replying to the French ambassador, threatened to send 15,000 troops to oppose the partition; an impolitic threat, in return for which Richelieu now secretly supplied the Covenanters with money.*

Charles prepares for a civil war.

Preparations for war in Scotland.

When the king's forces had assembled at York, when Huntly began to arm for his cause in the north, and the Marquis of Douglas in the south, the Covenanters seized, by surprize, some of the most important fortified places. Edinburgh, Dumbarton, and Dalkeith, fell at once into their hands. The Marquis of Hamilton arrived with the king's fleet from England; but he found Leith, which had been fortified by volunteers of all ranks, secure from assault, and could only land his few regiments on the uninhabited islands of the Forth. The king advanced from York to Berwick with 23,000 horse and foot, and the Scotch, to the number of 24,000, encamped in sight of his army on Dunse Law. The latter had hitherto, though with swords in their hands, constantly addressed Charles as their sovereign, petitioning redress of grievances from him, and never desisting from pacific overtures. Formidable as they seemed from their numbers, zeal, national spirit, and the excellence of their officers, the king listened to their proposals. His own army had few officers of experience, and the men were inspired by no such zeal as that which animated the Scotch. In the pacification of Berwick, it was agreed, that the armies on both sides should be disbanded, and that ecclesiastical matters should be referred to the decision of another assembly, and civil affairs to another parliament soon to be summoned. The fortifications of Leith were surrendered, and 30 castles were restored to the king's government.

Pacific measures agreed upon at Berwick.

The Scotch again abolish Episcopacy, and assert their civil rights.

The assembly of the Scottish church accordingly met, and again abolished Episcopacy, stigmatizing the liturgy, canons, and high commission, as before. The Scottish parliament also assembled, a truly patriotic parliament, who proposed to re-establish all their legislative rights which had been usurped since the accession of James, and to rectify many public abuses. Charles, who had never been sincere in his

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* To the amount of 100,000 crowns.

Renewal of the war.

treaty with the Scotch, made these proposals a pretext for suddenly ordering the Earl of Traquaire to prorogue their parliament, and both sides again prepared for hostilities. The bigotry of Laud, and the violence of Wentworth, overpowered in the English council the moderation of Hamilton and Morton; for to those four, under the name of the junto, the Scottish affairs had been long entrusted. A letter, which had been signed by seven of the Scottish nobility before the pacification of Berwick, and addressed to the French king, (but from proper motives never sent,) to solicit assistance, was thought a sufficient justification of war on the royal side; and Loudon, the Scottish commissioner from the Covenanters, was ordered for execution, (though the order was revoked,) for being the author of the letter.

Proceedings of the English parliament, April 13.

After eleven years intermission, it was necessary to convoke another parliament in England. By the mouth of the lord keeper Finch, the king discovered his wants, and representing his debts, for which he had given security on his crown lands, amounting to £300,000, pleaded for immediate supplies to support his armaments, and promised, though indefinitely, to promote the best wishes and interests of his English subjects. The house of commons, instead of listening to his wants, began with arranging the grievances of the public, under three different heads: those of the broken privileges of parliament, of illegal taxes, and of violence done to the cause of religion. After an intercession on the part of the peers in the king's behalf, which, so far from obtaining the supplies, was declared by the commons to be an illegal interposition, Charles dissolved the parliament; and to make this procedure still more dangerous and unpopular, imprisoned Bellasis and Sir John Hotham, for the share they had taken in the debates.

Parliament dissolved.

Proceedings of the convocation.

Though the parliament was dissolved, the convocation of the clergy was still allowed, which, besides granting to the king a supply from the spirituality, imposed an oath on the clergy and the graduates of the University, to support the established government of the church, by archbishops, bishops, deans, chapters, &c. The public notions of liberty were too far matured not to perceive, that such an assembly as the convocation, without consent of parliament, was unconstitutional; and an oath, which contained an &c. was justly exposed to ridicule. In the mean time, subscriptions were raised at court, or extorted from the merchants; nor were former illegal exactions, however productive of discontent, omitted. Instead of Arundel, Essex, and Holland, whose capacity, or whose zeal, in the last expedition was suspected, the Earl of Northumberland was appointed general, the Earl of Strafford lieutenant-general, and Lord Conway general of the horse. The army which was now raised, consisted of 19,000 foot and 2000 horse.

The Covenanters raise an army.

The Scottish Covenanters and parliament, were much more successfully active. The parliament having secured their own constitution, by the creation of a third estate; having passed a statute for triennial renovations, and having guarded the legislative power against the encroachments of royalty by other wise regulations, appointed a committee of estates to superintend at the camp and in the capital, the operations of the war. Conscious of the good wishes of the popular party in England, and we may well suppose
correspondence with the English parliamentary leade
they crossed the Tweed with 23,000 foot, 30
horse, and a train of artillery. Maintaining as befo
the most submissive language, they entered Englan
they said, with no hostile intentions, but to obta
access to the king's person, and lay their petition
his feet. At Newburn upon Tyne they were o
posed by General Conway, with batteries erected
the opposite bank, and 6000 horse and foot. Lesl
their general, first requested permission to pass; th
on a shot being fired by an English centinel, th
opened their artillery, and charging their opponen
put them to flight. Their army thus obtained in
mediate possession of Newcastle, Tynemouth, Shield
and Durham. Charles retired with a mutinous a
panic-struck army from Northallerton to York, whe
an address reached him from the city of London, p
titioning for a parliament. He contented himsel
however, for the present, with summoning a gre
council of the peers at York. A treaty was su
gested, as the only means to prevent the advance
the Scotch; and as that enemy still held out the la
guage of petition, sixteen noblemen, eminent for the
rank and popularity, were proposed to negotiate wi
the committee of the Scottish estates. In the mea
time, to exempt the four northern counties from th
contributions of the Scottish army, the sum of £85
a day was allowed for their subsistence. A loan o
L.200,000 was obtained by the credit of the peers
and Charles was thus, in the singular situation of
sovereign supporting two hostile armies at once i
the field. As many difficulties occurred in the nego
tiation, it was proposed to transfer the treaty from
Rippon to London, a change of place by no mean
favourable to the royal cause. Charles yielding in
despair to the torrent which he could not stem, as he
had foreseen that the council of the peers at York
would advise him to call a parliament, told them in
his first speech, that he had already taken that resolution.

During the recent transactions in Scotland, we
may easily conceive the state of the public mind
in England, and the deep sympathy of Puritans
and Presbyterians with their fellow believers, who
were regarded rather as brethren in a common
cause, than invaders. As the parliament met with
no ordinary prospects and motives, the House of
Commons was never observed to be so full at the
opening of a session. The house began by striking an important blow, by impeaching Strafford
the king's principal adviser. Hated by the Scotch
for having used all his influence against them; by the
Irish, for having acted in their kingdom as deputy,
with an unpopular vigilance and activity; and considered by the English popular party as an apostate
from their cause, he was exposed to the resentmen
of the three nations. The king had induced him
leave the army by a promise of protection, and as
ring him that not a hair of his head should be hur
but just as he entered the House of Peers, he fou
that Pym had brought up his impeachment from
commons, followed by the whole house. He
immediately ordered into custody. Laud could
long escape the scrutiny. He was also impeach

for high treason by the commons, and ordered into custody. The Lord Keeper Finch, justly obnoxious for having, on an important occasion, refused to put the question when ordered by the House of Commons; for having procured, by intrigues and menaces, the extrajudicial opinion of the judges, in the case of ship-money; and for having been active in many illegal measures, tried to deprecate the wrath of the commons by submission; but finding that his impeachment was resolved on, he fled to Holland.

Spreading the terrors of their power still farther, the commons proceeded to the punishment of those agents of royalty, who could not properly be attainted for high treason, but whose co-operation with tyrannical measures, (though, in many instances, involuntary,) brought on them the new term of delinquents. The sheriffs, who had levied ship-money, were voted such; the farmers and officers of customs concerned in raising poundage and tonnage, were severely fined; the members of the star-chamber, and high commission courts, were voted worthy of punishment; the judges, who had voted against Hambden in the case of ship-money, were obliged to find surety for their appearance; and Berkeley, a judge of the king's bench, was seized on his tribunal by an order of the house. The sentences which had been executed against Prynne, Bastwick, and other libellers of the court, were reversed, and their judges were ordered to make reparation to the sufferers. When those liberated patriots returned to London, they were met by multitudes, and the roads before them were strewed with flowers; and amidst the shouts of congratulation that attended them, were intermingled loud invectives against their late oppressors. Grievances were now represented, both by members within and petitioners from without, in such numbers, that the house was divided into above forty committees; charged each of them with the examination of some particular violation of law or liberty; and from the reports of these committees, the house daily passed votes which humbled the court, and elated the nation. Ship-money was declared illegal and arbitrary, the sentence against Hambden cancelled, the court of York abolished, compositions for knighthood stigmatised, and every late measure of administration treated with reproach and obloquy. Among the petitions from without, there was one which strongly indicated the state of the popular mind as to the church. A petition from the city, signed by 15,000 names, for a total alteration of church government, was presented by alderman Pennington the city member.

The pretensions of the commons to the right of imposing tonnage and poundage, by their own authority, were revived with assurance of success. In the preamble to the bill which they passed, for granting these duties to the king, they divested the crown of all right of levying them without their consent. Charles was obliged to pass this important bill, as well as to confirm, though with more reluctance, a bill for reviving triennial parliaments, after the example lately given by the Scottish parliament. A change of ministers, as well as of measures, was resolved upon. The Earls of Hartford, Essex, Bristol, Lord Kimbolton, and other noblemen of the popular party, were sworn privy counsellors. Juxon, bishop of London, resigned the treasurer's staff; but his character, and the moderation of his enemies, allowed him to remain unmolested. A feeble negotiation for the introduction of Pym, Hambden, and Hollis, into office, was interrupted by the death of the Earl of Bedford; and from circumstances imperfectly explained by historians, was never resumed. Unhappily for Charles, he continued, after his old ministers had been exiled and displaced, after the imprisonment of Laud, and the execution of Strafford, to govern by means of weak agents, destitute of energy or of credit with parliament.

Trial of Lord Strafford,

The fate of Lord Strafford was not long delayed after his commitment to the Tower. To bestow the greater solemnity on his trial, scaffolds were erected in Westminster hall, where both houses sat, the one as his accusers, the other as his judges. Besides the chair of state, a close gallery was prepared for the king and queen, who attended during the whole trial. Twenty-eight articles of impeachment were presented against him, regarding his conduct as president of the council of York, as deputy of Ireland, and commander in England. But though four months were employed by the managers in framing the accusation, and all his answers were extemporary, he certainly baffled the arguments of his accusers, and fell by an illegal sentence. The evidence against him was inadequate to establish the charge of absolute treason. He was convicted, even according to his enemies, of that constructive or accumulative treason, the bare admission of which, as grounds of sentence, is a disgrace to any tribunal, and would sanction the most enormous tyranny if it became a practice. The fear of popular violence had probably no small share in the decision of the Lords with respect to this unfortunate nobleman, and the same battery was applied to force the king's assent. Charles was irresolute; but Strafford, either hoping of escaping alive out of prison, or expecting that Charles might be touched more deeply by an offer of his own life, advised the king to sign his death-warrant, in order to quiet the tumultuous people. Charles at last granted a commission to four noblemen to give the royal consent to the bill for his execution,—an act for which he never forgave himself.

who is illegally condemned.

Charles submits to the parliament.

The commons, it may be said, were, without just grounds, jealous, that all the power which they had extorted from the king might be yet revoked, if they stopt at the present stage; but we may suppose them, nevertheless, to have been sincere in those fears. The execution of Strafford is a blot on the memory of that parliament, which it is possible for their advocates to palliate, but not to efface. The bill which they introduced at this period for their perpetual continuance, was a stretch of power which can only be vindicated by the plea of necessity. Charles empowered the same commissioners, who signed the warrant for Strafford's fate, to assent to this bill, and for the present conceded an entire victory to the popular power. From policy, more than necessity, the commons had borrowed money from the citizens, for the payment of the two armies during the negotiation with the Scotch, which was now transferred from Rippon to London. The citizens started difficulties

Their illegal proceedings.

with regard to a farther loan, declaring, that though they willingly trusted the parliament, they wished for the continuance of their sitting as a security for their repayment; and on this pretence the bill for continuance was voted and passed.

Negociation with the Scotch commissioners.

Among the demands of the Scottish commissioners, there were two to which Charles felt most reluctant to accede,—the tacit confirmation of the late acts of the Scottish parliament, including almost every civil and religious demand; and the punishment of incendiaries, i. e. of such civil ministers and prelates as were thought to have advised the king to hostilities with the Scottish nation. The prosecution of incendiaries was at last referred to the English parliament, and tacitly reserved to the king; it being understood that they were to be for ever excluded from his person, and from offices of trust. Of 300,000*l.* which the English parliament voted as a brotherly assistance to the Scotch, and which the Scotch claimed as an indemnification for their share of losses by the war, a fourth part was advanced. Ecclesiastical conformity was referred to the English official arrangements, and to the Scottish parliament. The king had already announced his intention of visiting Scotland once more; a journey of which the commons were afraid, as it would lead him directly through the heart of both armies.* As he refused to defer his departure, they ordered the arrears to be provided, and both armies to be withdrawn.

August 8.

Sept. 9.

A small committee of both houses attended the king, in reality to act as observers of his conduct. These were the Earl of Bedford, Lord Howard, Sir Philip Stapleton, Sir Wm. Armyne, Fiennes, and Hambden.

Amidst this variety of distracting affairs, the king concluded the marriage of the Princess Mary with William, Prince of Orange. The parliament assented to this measure with satisfaction.

The king visits Scotland.

On the King's arrival in Scotland, he had the mortification to find Montrose, and others of his friends, imprisoned for that detected correspondence which they had maintained with him during the treaty of Rippon. Scotland now beheld, perhaps for the first time, a parliament, whose deliberations, instead of being limited as formerly to a single day, were pursued for months without interruption in the presence of the king. The lesser barons, hitherto restrained to a single suffrage for each county, now assumed, for the first time, each a separate and independent vote. Since the detection of Montrose's treachery, the parliament were more inclined than ever to adhere to their accusations against the incendiaries; with a patriotic desire also of rendering their government independent of the English cabinet, they wished to possess influence in the nomination of ministers; a last sinew of his prerogative, of which Charles was naturally tenacious. By mutual accommodation, the number of incendiaries was reduced to five, both plotters† and incendiaries were released from prison, and their sentence was to be referred to the king. Charles, on his part, submitted to choose his ministers, with the approbation of the Scotch estates while they sat, and of his privy council, who themselves were chosen with the approbation of the estates, when the estates should be adjourned. He agreed to deprive of their seats, four judges who had adhered to his interests, and others were chosen more agreeable to the ruling party. Several of the Covenanters were sworn into the privy council. The king bestowed pensions and preferments on Henderson, Gillespie, and other popular preachers, and practised every art to soften his enemies. Argyle was created a marquis, the Lords Loudon and Lindsay earls, and the title of the Earl of Leven was bestowed on Lesly. The Earl of Lanerk continued Secretary, Roxburgh Lord Privy Seal, and the Treasury was put in commission. Argyle was preferred by parliament as candidate for the office of Chancellor; but the king, though he bestowed on him a new title, wished not to aggrandise so popular and powerful a nobleman with new power.

Argyle and Hamilton held, at this time, the principal ascendency in the Scottish parliament. The latter had entered the covenant as a spy from the king; but, according to Clarendon, Montrose, in revealing the secrets of the Covenanters, imparted, that Hamilton was as hearty in the covenanting interest as Argyle. Montrose had already denounced both Hamilton and Argyle, as traitors; and had communicated, there is little doubt, intelligence of the secret correspondence of those noblemen with the parliamentary leaders in England. Their guilt he offered to assert and prove in parliament; but rather advised, that they should be assassinated, and undertook the assassination himself.

The plot for the arrestation of Hamilton and Argyle, an event in Scottish history commonly denominated *the incident*, has been frequently called suppositious; but that their arrest was intended by the earls of Crawford and Cochrane, admits of no dispute. They were to have been conveyed, it was said, under guard of Cochrane's regiment, stationed near Leith, where a frigate was ready, in the roads, to convey them off. The two noblemen, however, fled to Kinneil, the seat of Hamilton's brother. The king, who came next day to the Scottish parliament with 500 men in arms, complained of the injurious surmises excited by their flight. The leaders of the English parliament understood this affair of the incident, to which so many historians who have recorded it have been blind. They knew, that Montrose had betrayed their late correspondence with the Covenanters; that Charles, wishing to revive obsolete treasons, intended to impeach them, and bring them to execution; and that the seizure of Argyle and Hamilton was the forerunner of his intentions. When the news of the incident, therefore, reached England, the commons applied immediately for a guard, and obtained it from Essex, whom the king had left general in the south.

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* It was not without reason that the commons were jealous of the king's personal influence with the armies, as an association was discovered this year, (1641,) headed by some principal officers, Piercey, Jermyn, Oneale, &c. whose object was to get the army to petition (that is demand) a restitution of the power assumed by parliament. The king had countersigned a rough draught of the intended petition.

† The plotters were those concerned in Montrose's late treachery to the covenant.

In the midst of these transactions, intelligence arrived of the Irish rebellion,—an event unparalleled, for horror and cruelty, in our own annals. The king had not left Scotland when the first information of this dreadful affair was transmitted to him, but the extent of its enormity was not at first known. The Scottish parliament has been represented as indifferent to the fate of their fellow Protestants; but, it seems, that Charles, unacquainted himself with the extent of the rebellion, represented it as insignificant to the parliament. The danger was no sooner discovered, than they offered 3000 stand of spare arms, and 10,000 men for the relief of Ireland; a relief which, if timely accepted, might have proved sufficient.

The king, upon his return from Scotland, was received in London with shouts and acclamations of the people. Sir Richard Gournay, the lord mayor, had promoted these favourable dispositions, and had persuaded the populace to give some marks of affection to the king, so apparently inconsistent with their past and subsequent contempt of him. But the pleasure which Charles enjoyed from this reception was speedily damped, by a remonstrance of the commons, which was presented to him immediately on his return. This remonstrance, which contained a merciless and minute exposure of all that was unfortunate, invidious, or faulty in his reign, was not voted in the commons without a warm debate of the house, and carried by a majority of only eleven. It concluded with recommending the appointment of ministers, in whom the parliament might have reason to confide. Although the acrimony of this remonstrance was extreme, the conclusion shewed that a constitutional remedy, if not certain, was at least open to trial. The public confidence at that time was denied to those ministers of Charles who had deserted the public cause: it was withheld from the servile insolence of Archbishop Williams, from the levity of Digby, and the infamy of Saville; but was reserved for the unassuming, but inflexible virtues of Hambden, the mild integrity of Kimbolton, the sincere and ardent genius of Hollis, and the cool sagacity of the aged Pym.

From this period the proceedings of the commons became more bold, determined, and violent. They had accused thirteen bishops of high treason, for enacting canons without consent of parliament. They brought a bill forward twice in the same session, for taking away the votes of these bishops. This exclusion of the popish and spiritual lords, was at last accomplished by popular tumults, which the commons kept alive by politic design, and to which the supporters of loyalty and hierarchy only gave force by resistance. The latter party were now denominated the cavaliers; while their antagonists, from the short cut of their hair, were contemptuously called round heads. Several reduced officers, and young gentlemen of the inns of court, during the menaces and assemblies of the populace round Whitehall, offered their services to the king; and had frequent, and sometimes bloody, skirmishes with the people.

Charles I.
1641.
December.

While the tumults raged, Williams, the archbishop of York, exasperated at some indignities which he had received, hastily called a meeting of his brethren, and by his advice, a protestation was addressed to the king, setting forth, that they had been menaced and assaulted by an unruly multitude, and could no longer exercise their right of attending and voting in the house. For this reason, they protested against all laws and resolutions that should be voted during their constrained absence. As soon as the imprudent protestation was presented, the peers desired a conference with the other house. The commons immediately sent up an impeachment of high treason against the protesting bishops, for endeavouring to subvert the fundamental laws, and to invalidate the authority of the legislature. No man in either house ventured to speak a word in their vindication, so much was every one displeased at their egregious imprudence.

Lord Kimbolton and five commoners impeached.
1642.

A few days after, the king was betrayed into an indiscretion still more fatal, to which all the ensuing disorders and civil wars may be directly ascribed.* This was the impeachment of Lord Kimbolton and the five commoners, Hollis, Sir Arthur Hazlerig, Hambden, Pym, and Strode. Charles is supposed to have been impelled to this measure by the advice of the queen and the court ladies, and of Lord Digby.

Herbert, attorney-general, appeared in the house of peers, and in his majesty's name preferred articles of impeachment against these six individuals; importing, that they had endeavoured to subvert the laws, to deprive the king of his just power, to draw his army to disobedience; that they had endeavoured to compel the parliament by force and terrors to join them, and had actually levied war against the king. The injustice of attempting to punish the connection of those men with the Scottish Covenanters, after an act of oblivion, and all that had passed, could only be equalled by the folly of attempting to seize them. A serjeant at arms demanded the five commoners from their own assembly: he was sent back without a positive answer. Messengers were employed to search for the members, who sealed and locked their trunks and private apartments. The king came next day in person to demand them of the house of commons; but the five commoners had a private notice to withdraw a moment before the king entered.† The king left his retinue of about 200 men, some with halberts, others with walking swords at the door, and advanced alone through the hall, while all the members rose to receive him. The speaker withdrew from the chair, and the king took possession of it. He repeated his resolution of seizing the accused members wherever he could find them; of proceeding against them in a fair and legal way; and expected, as he had not come to take them by force, but by lawful authority, that the house would send them to him. He then asked the speaker, if they were in the house. "Sir," answered the speaker, (falling on his knee,) "I have neither eyes to see, nor tongue to speak in this place, but as the house is pleased to di-

The king demands, in person, from the commons the impeached members.

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* Hume.

† The Countess of Carlisle, Northumberland's sister, was entrusted with information of the king's intention, and caused the members to be informed.

rect me, whose servant I am; and I humbly ask pardon that I cannot give any other answer to what your majesty is pleased to demand of me." The commons were in the utmost disorder; and when the king was departing, some members cried out, " Privilege, privilege!" The house immediately adjourned.

The accused members take shelter in the city,

In the evening, the accused members flew to the city, which was their fortress. The citizens were the whole night in arms. Next morning about ten, Charles, attended by a few lords, repaired to a meeting of the common council at Guildhall, to whom he justified his intentions respecting the fugitives, and hoped that they would not find protection in the city. This measure only produced new mortification. On his way back, the streets resounded with cries of privilege of parliament; and one of the populace called out, near his coach, " to your tents, O Israel!" the watch-word of mutiny among the Israelites, when they abandoned Rehoboam.

and afterwards take their seats in the house in triumph.

When the commons met, they either felt, or affected dismay, and adjourning for some days, ordered a committee to sit in Merchant Taylors Hall. They met again to confirm the resolution of that committee on the illegality of the king's attempts to seize their members; and when the popular mind was wrought up to the highest pitch of passion in their cause, brought the accused members in military and triumphant procession to resume their seats. The river was covered with vessels laden with small pieces of ordnance, and prepared to fight; and Kippon appointed by parliament to be major-general of the city militia, led a tumultuary army to Westminster-hall. The king, who, disconsolate and alarmed, had retired to Hampton Court from Whitehall, sent a message to the commons, proposing that they should agree upon a legal method, by which he might carry on his prosecution against the members. They desired him to lay the grounds of prosecution before the house, declaring that they would judge themselves whether it were proper to surrender their members for trial. By successive messages, he offered every concession in his power, to pardon the members, and to make reparation for the breach of privilege. The commons would accept of no reparation without an acknowledgment of his advisers—a cruel condition, to which he could not submit without humiliation. The commons had already stript the king of almost all his privileges, the bishops were fled, the judges were intimidated; it now only remained, that, after securing the church and the law, they should get possession of the sword also. The assumptions of the commons at this period, can be justified only by their firm belief, that the king still intended to revoke whatever concessions he had already made in favour of liberty. Unfortunately the earlier history of his reign betrays an insincerity in the character of Charles, which makes his treachery in the present crisis too credible. The late attempt to arrest the five members, connected as it must seem to be, with the incident in Scotland, justifies the strongest suspicions of the king's willingness to break the amnesty, and peculiarly justifies the suspicions of men, whose lives were in imminent danger, and whose passions were swayed by the turbulence of the times. Since the parliament had just grounds to feel insecure from the king's intentions, since they knew, that by removing Balfour, a man of popular principles, from the government of the Tower, and substituting the Earl of Newport as governor in his place, and by preparations for securing Hull and Portsmouth, that he had premeditated reducing them by force of arms; and since they had seen him uniformly refuse the constitutional remedy of accepting a popular ministry, they certainly did not claim the command of the army without a strong plea for that otherwise unconstitutional demand. But whatever were Charles's intentions, we cannot wonder that he should refuse this last concession. After obliging him to concede that the Tower, Hull, and Portsmouth, should be entrusted to persons appointed by parliament, the commons demanded that the officers of the militia should be of their own nomination. He was at that time at Dover, attending the queen and the Princess of Orange, as the latter dreading the popular clamour at her religion, as well as for the sake of raising resources for the anticipated civil war, was leaving the kingdom. The king at first evaded the demand, by requesting leisure to consider it. When the commons pressed their remonstrances for embodying and directing the militia under the management of both houses, and desired the command of the army even for a limited time, he exclaimed, in a burst of exasperation, " *No, not for an hour!*"

The king offers to make concessions, which the commons refuse.

In this state of contention with the parliament, London was evidently an unsafe residence for the king. Accordingly, taking the Prince of Wales and the Duke of York along with him, he arrived by slow journies at York. Here he found the public spirit much more strongly in his favour than in the south; and the nobility and gentry from all quarters, either personally, or by messages and letters, expressed their duty towards him. The queen, who was in Holland, was making successful levies of men and ammunition. But, before war was openly declared, the shadow of a negotiation was carried on, rather with a design to please the people, than with any view of reconciliation. Mutual remonstrances passed; in which those of the king, assisted by his secretary Lord Falkland, were eminent for ability and eloquence. The parliament sent to the king nineteen propositions as the basis of an agreement, which, by the king's friends, were considered as absolutely subversive of monarchy. They required, that no man should remain in the council, nor officer be chosen, without their consent; that no deed of the king should be valid unless it passed the council, and be attested under their hand; that none of the royal family should marry without consent of parliament and council; that the laws should be executed against Papists; that Popish lords should not vote in parliament; that the liturgy and church government should be constituted according to the advice of parliament; that the militia should be subject to their controul; that the justice of parliament should pass upon delinquents; that a general pardon should be granted, with exceptions to be made by parliament; that the forts and castles should be disposed of by consent of parliament; and that no peers should be made but with consent of both houses. " If I should submit to these terms," said Charles, " I may have hand kissed, and may retain the title of Majesty, but I should remain but the *outside*, the *picture*, the sign of a king."

In all the commands which the parliament issued, they bound the persons to whom they were directed, to obey the orders of his majesty signified by both houses of parliament; and, distinguishing between the office and person of the king, those forces which they employed against him they levied in his name, and by his authority. To their ordinance respecting the militia, the king opposed his commissions of array. The counties obeyed the one or the other according as they stood affected, and in many places skirmishes immediately ensued. The magazine of Hull contained the arms of all the forces levied against the Scots. Charles expected to overawe the governor, Hotham, into submission, if he could gain admission with his retinue; but the governor shut the gates against him.

Never did a war seem more unequal than the present at its commencement. The king's revenue, which had been scantily dealt out to him before, was stopt after he fled to York. The armies raised for Ireland by parliament, were now devoted to act against him, under the command of Essex. In London, no less than 4000 enlisted in one day. The requisition of the parliament for loans of money and plate was so well obeyed, that there was hardly room to stow the treasure, or men to receive it; and such zeal animated the city, that the rich women bestowed their plate and ornaments, and the poorer their silver thimbles and bodkins. London, and all the sea ports except Newcastle, were in the hands of parliament; of which the customs yielded them a certain and considerable supply, and the seamen naturally followed the disposition of the ports to which they belonged.

The king, it is true, was surrounded by a splendid nobility, and a faithful body of gentry, who diffused their loyalty among the rustic and hardy retainers whom they raised on their own estates. Above forty peers of the first rank attended him. The bishops and the clergy, too, were on his side, although these, in a war with Puritans, were not likely to overawe their enemies. Spain, from motives of bigotry, supplied some money and arms to his unpopular auxiliaries the Irish; and the Prince of Orange encouraged some English officers in his service to enlist on Charles's behalf. But the forts, magazines, arms, and fleet, were in the hands of his enemies. Only a part of the queen's succours arrived from Holland; and Charles was obliged, in order to arm his followers, to borrow the weapons of the train-bands, under a promise of restoring them when peace should be settled.

The royal standard was first erected at Nottingham; but whether from a natural hesitation to commence hostilities, or from inattention to the preparations of a feeble enemy, the parliament, with a superior force at Northampton, neglected to dissipate the few troops that resorted at first to the king. Charles was suffered to retire unmolested to Shrewsbury, to collect his levies, and to interpose with an equal army between Essex, the parliamentary general, and the capital. On mustering his army in that situation, the king found it amount to 10,000 men. The Earl of Lindesey, who had acquired some military experience in the Low Countries, was made general; Prince Rupert, a son of the elector palatine, who was early in the war, distinguished by his promptitude and courage, commanded the horse; Sir Jacob Astley the foot; Sir Arthur Aston the dragoons; Sir John Heydon the artillery. Such was the low state of military skill in England, produced by a long peace, that, after the hostile armies set out, the king's from Shrewsbury, the other from Worcester, they marched ten days in mutual ignorance of each other's motions. On the 23d of October they met at Keinton, or Edgehill, in the county of Warwick. Both the wings of Essex, the parliamentary general, were at first put to flight by the shock of Prince Rupert's cavalry, and the troops under Wilmot and Sir Arthur Aston; but the king's reserve, judging, like raw soldiers, that the day was won, took too prompt a share in the chase, and were watched by Sir W. Balfour, the commander of the parliamentary reserve, who wheeled upon them suddenly, and converted their victory into a doubtful defeat. Returning to the charge, the two armies faced each other for some time, without courage on either side to renew the attack. All night they lay under arms. Next day Essex first drew off towards Warwick, and the king to his former quarters. Five thousand are said to have perished, in nearly equal shares, on both sides. Charles's nearer advance to London, and a few slight successes after this victory, brought on the treaty of Oxford, when winter concluded this first campaign. As the condition of Charles's recal, the parliamentary commissioners required the militia to be left to the disposal of the two houses, Episcopacy to be quite abolished, and ecclesiastical controversies to be determined by an assembly of divines. From their private conferences, it was obvious that much would have been deducted from these demands, if Charles had not been extravagant in his; and the failure of the negotiation may, on the authority of Clarendon, be ascribed to Charles's fidelity to an unhappy promise which he had made to his queen, to accede to no terms without her intervention, and restore none to favour without her consent.

Battle at Edgehill. Oct. 23.

Treaty of Oxford fails.

The parliamentary army again takes the field. 1643.

The parliamentary army took the field next spring 24,000 strong: The campaign of 1643 was, on the whole, unfavourable to them; and, considering the difficulty of raising money among the king's friends by spontaneous exertions, compared to the facility with which their antagonists recruited their finances by taxes, that success is surprisingly honourable to the royalists. The city of Reading, however, surrendered to Essex, at the head of 18,000 men. In the north, Lord Fairfax, who commanded for the parliament, was dislodged by the Earl of Newcastle from Tadcaster, but the victory proved indecisive. Waller, the poet, distinguished himself on the parliamentary side, by taking Winchester, Chichester, and Hereford. These successes were counterbalanced by victories of the royalists in the west, where, at Bradoc-down, in Cornwall, the Cornishmen overthrew General Ruthven, and chased General Stamford back to Plymouth and Exeter. The return of Stamford's forces under Major-General Chidley, in the same di-

Successes on both sides.

Britain.
Charles I.
1643.
Successes of the royalists.

rection from which they had been repulsed, brought on the battle of Stratton, where the parliamentary forces were again attacked by the Cornish royalists, and completely routed. This victorious army, joined by the Marquis of Hertford, and by Prince Rupert with a reinforcement of cavalry, soon after fought a pitched battle near Bath, with the army of Waller, without decisive advantage on either side; but, on the 13th of the same month, they routed and dispersed Waller's whole forces at Roundaway, and drove him into Bristol with only a few horse. That city yielded in a few days to Prince Rupert by capitulation, though not until the attempt to take it by storm had cost the royalist 500 men. The king, at this period, joined the camp at Bristol; and so important were all the advantages he had gained by the defeat of Fairfax in the north, of Waller in the west, the retreat of Essex, and the reduction of Bristol, that a fair opportunity presented of advancing towards a distracted capital. But the parliament was preserved by the destiny which ever attended Charles, whose arms were diverted, by an impulse of sudden indignation, to the siege of Gloucester. The approaches to that town were baffled by the skilful defence of Massey. A general assault was repelled by the desperate enthusiasm of the garrison and city, which was reduced, however, to extreme necessity, when it was relieved by Essex. His return was opposed by Charles at Newbury, where a battle was fought with desperate and steady valour on both sides. Essex's horse were several times broken by the king's, but his infantry kept in firm array, and, besides giving their fire, presented an invincible rampart of pikes against the furious shock of Prince Rupert and the gentry of the royal cavalry. Night put an end to the action, but left the victory undecided. On the side of Charles, but already disgusted at the royal cause, fell the virtuous Lord Falkland. Essex next morning proceeded on his march to London, and, though he had gained no victory, obtained the approbation of parliament.

Siege of Gloucester,
which is relieved by Essex.
Battle at Newbury.

[illegible]

In the north, during the summer, the Marquis of Newcastle was opposed by Sir Thomas, son of Lord Fairfax, and Oliver Cromwell, two officers who were at this time rising fast into distinction. But the advantages which were gained by the former at Wakefield, in defeating and making a prisoner General Goring, and by the latter at Gainsborough over General Cavendish, who fell in the action, were more than compensated by the route of Lord Fairfax at Atherton Moor, (on the 31st of July) and the dispersion of his whole army. After this victory, the Marquis of Newcastle sat down before Hull with an army of 15,000 men, but, being beat off by a sally of the garrison, he suffered so much that he thought proper to raise the siege. About the same time Manchester had advanced from the eastern associated counties, and joined Cromwell; and young Fairfax obtained a considerable victory over the royalists at Horne Castle, where the conduct and gallantry of the two rising associates were eminently displayed. Though fortune thus balanced her favours, the king's party were still superior in the north; and, had not the garrison of Hull kept Yorkshire in awe, they might have joined their forces with those in the south. The drawn battle of Newbury put an end to the campaign of 1643, by obliging both parties to retire into winter quarters.

While the king's arms were, unhappily for his own cause, diverted from London against Gloucester, the parliament was not without alarm from divisions in the metropolis itself. Distinguished as the war had been, most honourably for the English name, by mutual clemency in the field, it was not possible for the new government to maintain itself, without arresting numbers of those who were convicted or suspected of royalty; and we need not wonder that the jails were full, and the very ships in the river converted into prisons. But the zeal of the followers of parliament was not universal. Waller, already mentioned in the wars, an elegant poet, an eloquent speaker in parliament, and a man of great influence from his persuasive address, was induced, either by treachery, or disgust at his party, to project an association in the city for refusing the parliamentary taxes, and obtaining peace with the king. The design was detected. Tomkins, the brother-in-law of the poet, and Chaloner, the friend of Tomkins, suffered death, while Waller saved his own life by confessions not much to his honour, and his sentence was at last changed to a fine of L. 10,000.

As Scotland could not be indifferent to the issue of the present contest, so neither party could be indifferent to the prospect of her aid. When hostilities had first commenced in England, offers of mediation, which had before been advanced, were renewed by the Scottish council, and by the commissioners whom the late Scottish parliament had appointed as conservators of peace between the two countries, of whom a body proceeded to Oxford. But the royalists refused them a passport to London to try their mediation with the English parliament; they refused them a parliament in Scotland, and dismissed them with indignation.

Instead of a triennial parliament, which could not be anticipated in Scotland, a convention of estates was summoned by the council and conservators of the peace. The object of their assembling was soon announced by their impatient expectation of commissioners from England. These arrived from the English parliament in the June of 1643, when the state of the republican arms made it necessary to implore the fraternal aid of the Scots. The commissioner chiefly trusted among them was Vane, a man who, in an age distinguished for active talents, had no equal in eloquence, address, and dissimulation. By his persuasion, was framed at Edinburgh, that *solemn league* and *covenant*, which effaced all former protestations and vows taken in both kingdoms, and long maintained its credit and authority. In this covenant, the subscribers, besides engaging mutually to defend each other against all opponents, bound themselves to endeavour, without respect of persons, the extirpation of popery and prelacy, superstition, heresy, schism, and profaneness, to maintain the rights and privileges of parliaments, together with the king's authority, and to bring to justice all *incendiaries and malignants*. The subscribers of the covenant vowed also to preserve the reformed religion, as established in the church of Scotland; but, by the artifice of

Vane, no declaration more explicit was made, with regard to England and Ireland, than that these kingdoms should be reformed according to the word of God, and the example of the purest churches. The Scottish zealots, when prelacy was abjured, took it for granted, from this expression, that their own church was to be the model. But the able politician Vane had other views; and while he laughed at their simplicity, had devoted himself to the maintenance of systems still more dangerous. The solemn league and covenant was received in the Scottish convention and kirk assembly with enthusiasm and tears of joy, and transmitted to the English parliament and assembly of divines at Westminster, where it was received with the same applause, and ordained in both kingdoms to be universally subscribed. By a treaty with the Scottish convention, 21,000 Scotch were to be retained in arms at the expence of England, to be led by their own generals, and to receive orders from a committee of both kingdoms. No terms of peace were to be concluded without the concurrence of the Scotch, who were to evacuate England at the conclusion of the war.

Political choice, as well as religious zeal, no doubt prompted Scotland to take this side in a quarrel, in which the success of parliament threatened much less evil to their nation, than the success of the king; a quarrel too, in which neutrality was as difficult as unsafe. But Charles had, in the mean time, endeavoured to atone for his recent rejection of their mediation, by offers to bribe their loyalty, which, if insincere, were at least magnificent. Among many things, he promised to reannex Northumberland, Cumberland, and Westmoreland, to the ancient kingdom of Scotland. But these offers were counteracted, by the discovery of intrigues, by which the non-covenanting Highland clans under Montrose, were engaged to desolate the Lowlands in the royal cause.

The Earl of Antrim, who was to bring the Irish to co-operate in this design, attempted to land at Knockfergus, but was surprised by the Scotch; and the discovery of correspondence found on his person, first revealed the king's intentions to procure a cessation of arms with the Irish Catholics, and to introduce their arms into England. This discovery spread horror and alarm, and more firmly united the English and Scotch. A massacre of the chief Covenanters was projected by Montrose, and was to have taken place at the Countess of Roxburgh's funeral; but the royalists were happily too few to attempt it.

The discovery of the king's intentions to make a truce with the Irish insurgents, and to convert those ferocious enemies into auxiliaries, quickened the military preparations of the Scotch, and impelled them to take the field in the depth of winter. (1643-4). By the victories of Ormond, all the forts which had been either besieged or blockaded by the native Irish had been relieved; and by Ormond's influence chiefly, the justices and council in Ireland had fallen into an entire dependence on the king; so that, excepting a body of Scottish forces who, for some time, were allowed, by agreement with the English parliament, to defend the British planters in the north of Ireland, it was to Charles's troops that the honour of preserving the British name in the sister island was due.

Charles holds a parliament at Oxford.

The king, that he might make preparations during the winter for the ensuing campaign, summoned to Oxford all the members of either house who adhered to his interests, and availed himself of the name of a parliament, so passionately cherished by the English. His house of commons amounted only to 140, half of the number at Westminster: his house of peers was twice as numerous as that of his opponents. Such a spectacle of double legislation, was a token of calamity to the nation, which reminds us of Œdipus, when he beheld two suns in the firmament. The parliament at Westminster voted the first excise that was ever introduced in England. That at Oxford imitated the example, and granted the king £100,000, to be levied by loans upon their subjects within his quarters. It was the interest of Charles to declare himself, (whether sincere or not,) continually anxious for peace: it was the interest of the commons rather to be sure of an advantageous peace, than to risk any thing by an unequal treaty. The negotiations, therefore, which Charles preferred before the commencing campaign, were thwarted in the first instance, by his applying to Essex, who refused to assist towards treating, unless the communication were directly opened with parliament; and in the next instance, by the king refusing to acknowledge the houses at Westminster an entire parliament without including those at Oxford. Twenty-one thousand Scotch, commanded by Lesly, earl of Leven, and guided by a committee of the two nations, marched to support the parliamentary cause, in the depth of winter; and crossing the Tweed amidst severe frost and deep snows, sent an ineffectual summons to the town of Newcastle. Then passing the Tyne, they faced the Marquis of Newcastle, who lay at Durham with 14,000 men. The regiments which Charles had procured from Ireland, reduced some fortified places in Cheshire, and invested Namptwich; but young Fairfax advanced to relieve it, and totally ruined and dispersed the Irish auxiliaries. He then joined his father, Lord Fairfax; and their joint forces defeated Colonel Bellasis at Selby, whom Newcastle had left to protect one approach to his army; so that the Marquis, for fear of being inclosed, was obliged to retire to the defence of York, and to permit a junction of Fairfax with the Scotch. Their united arms seemed insufficient to reduce York, till the arrival of Manchester (lately Kimbolton) with a third parliamentary army. Even then, the three armies contented themselves with a slight blockade; but on the approach of Prince Rupert with 18,000 royalists, Manchester, Leven, and Fairfax, abandoned the siege, and prepared for battle on Marston Moor. By a most dextrous movement, or rather concealment of his movements, Rupert crossed the Ouse, threw his military stores and provisions into York, and joined his forces with those of the Marquis of Newcastle. If contented with this exploit, he had listened to the advice of Newcastle, and remained on the defensive till another expected reinforcement arrived, the triple army would have probably much diminished; the king's army, at all events, would have been saved; but impelled by a rash spirit, Rupert gave orders for battle. His forces occupied Marston Moor, those of his opponents extended along the adjacent fields;

Progress of the Scotch army.

Battle of Marston Moor.

Charles I. 1644. Battle of Marston Moor.

both sides were nearly equal in number; and it was observed, that, for the first time in the 17th century, 50,000 British subjects were drawn up for mutual destruction. The signal for close combat was given in the evening, after an ineffectual cannonade across a bank and ditch that intervened between the armies, and after a silence of suspense which succeeded on both sides, in expectation of mutual attack. Cromwell and David Lesly surmounting the mound, broke the right wing of Rupert, dispersed his own cavalry, and destroyed part of his centre. Fairfax the younger was kept on the other wing of the parliamentary army, by the irresistible charge of General Hurry, who also cut up a reserve of the Scotch infantry. But while the royalists were pushing on to the baggage of their opponents, Cromwell and Lesly wheeled round, and the battle was restored, after both armies had reversed their front, and exchanged their ground. The shock was short, bloody, and decisive; the royalists were entirely routed. By Lesly's three Scottish regiments, and Cromwell's iron brigade, this eventful victory was won.

York and Newcastle taken by the parliamentary army.

Rupert retired with his shattered forces into Lancashire, York surrendered to the victors, and in that city Lord Fairfax established his authority over the whole county. While the Scottish army marching northward, joined Lord Callender with new forces, and took Newcastle by storm.

The campaign in other parts of the kingdom presented great vicissitudes of fortune. Waller, after having defeated the royalists in the south, under General Hopton, turned to Oxford, where the king was already pressed by Essex; but the king escaped by a nightly march to Worcester, leaving some troops in Oxford, which, for the present, were not molested, as Essex proceeded against Prince Maurice into Cornwall, and left the king to Waller. Charles, whose [illegible] were taken wisely, either by his own contrivance or that of his general, Ruthven, suddenly [illegible] his foot at Oxford; and Waller, who was [illegible] by a check which his troops sustained on the [illegible], as well as by the recal of his London [illegible], allowed the king to pursue Essex, who [illegible] between Charles's troops and those of Maurice, and his army reduced to surrender their foot, artillery, and baggage, while his cavalry, with difficulty, broke through the lines of their surrounding [illegible], and the general himself escaped to Plymouth.

[illegible] appeared to have despaired of the [illegible], the parliament wisely expressed their [illegible] ability after this disaster; and as no [illegible] had been made, that the troops who had been [illegible] and dismissed by Charles, should not [illegible], they were equipped again in six weeks. [illegible] Manchester, Cromwell, Waller, and [illegible], and the soldiers of Essex, (for Essex [illegible] by sickness for commanding [illegible] battle to Charles at Newbury, which be[illegible] time the scene of bloodshed. Night [illegible] prevented the king from a total overthrow. [illegible] deposited in Dennington Castle, [illegible] his precipitate retreat to Oxford; [illegible] he returned reinforced by Prince [illegible] from the north, and, in presence of a victorious army, withdrew his artillery, and distributed his troops into winter quarters.

The war in Scotland was supported on the side of royalty by the single ability of Montrose. That active leader, with a few troops collected in Westmoreland, made at first an unsuccessful attempt to erect the royal standard at Dumfries. Retiring to Athol in disguise, with only two attendants, he was met by a body of Irish, who had been sent over from Ulster by the Earl of Antrim, and had already ravaged the coast of Argyle. At the head of these, and of his Highland adherents, who flocked immediately to his standard, he gave the Covenanters a sanguinary defeat, first at Tippermuir near Perth, and after obtaining possession of that city, another at the bridge of Dee. Aberdeen fell into his hands, which he gave up to pillage and slaughter. Argyle, who was his chief antagonist in the field, could not prevent him from descending, by rapid marches, into the remote recesses of Argyleshire, and extending his devastations over Braedalbin, Argyle, and Lorn, to the confines of Lochaber; but, baffled by his superior boldness and skill, fled by sea to escape being involved in the ruin of his clan.

Negotiations for peace were renewed in England. Although the parliament, by their late answer to the king's propositions from Oxford, held out the most rigorous offers, and a list of proscriptions; yet the rising power of the Independents made it now the interest of many of the Presbyterians to conclude a peace, if it could be obtained with security. Sixteen commissioners from Charles, twelve from parliament, and four from the Scotch, assembled at Uxbridge. The treaty was limited to three subjects,—religion, the militia, and Ireland. On the first head, the king's opponents required prelacy to be abolished, and the acts of the assembly of divines at Westminster to be confirmed, and the solemn league and covenant to be taken by the king, and universally enjoined. Charles refused their propositions, and the reformations in episcopacy which he offered to concede appeared insignificant to the opposite party. On the second head, parliament reduced their demand of managing the militia, to seven or three years after peace, when it might be again adjusted, and proposed an act of mutual oblivion. On the subject of Ireland, the parliament required, that the cessation of arms should be declared void; that the Irish war should be directed by them, and no peace concluded without their consent. Charles would make no concession on this point; no offer of compromise, nor attempt to make his own pretensions approach nearer to those of the parliament, came from his side. On the contrary, his commissioners studiously obstructed a conclusion. The Earl of Southampton, one of them more faithful to his interests, knelt and implored him to yield to the necessity of the times. His assent was obtained to the most material propositions; but the news of Montrose's victories in Scotland made Charles recal this assent; and reliance on this partizan, together with the hopes of 10,000 men under the Duke of Lorrain, for which the queen had negotiated, were the chief causes of the failure of a treaty, in which Charles's letters to the queen shew him to have been insincere.

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Montrose continued for a time to brighten the royal cause, by the delusive hopes of his splendid atchievements. He had retired to Inverness from laying waste Argyleshire, when Argyle recalled his scattered clan to Inverlochy, a castle at the western extremity of those lakes which almost cross the Highlands from east to west. The Earl of Seaforth, with 5000 men, pressed Montrose on the other side; but, by a rapid movement, Montrose fell upon the covenanters at Inverlochy. Argyle, seized with a panic, deserted his army, and fifteen hundred of them were slaughtered on the scene of battle. Montrose was joined, in consequence of this victory, by several new clans of the Highlanders; and the army of Lord Seaforth, consisting of raw levies, was dispersed by the terror of his name. Recrossing the Highlands, he abstained, indeed, from the cold blooded massacres which had disgraced his former campaign; but refusing mercy to all who did not assist his cause, he pillaged and burnt their habitations wherever he marched.—Elgin, Cullen, Banff, and Stonehaven, experienced his cruelties; the last of these places was consigned to the flames, by his order, amidst the cries and intreaties of its inhabitants. He had carried Dundee by assault, when Baillie and Ury, two officers of the covenanting army, who had been recalled by the council of Edinburgh to protect the country, approached him. He made an astonishing retreat of 60 miles in one day, before their superior forces, who divided in pursuit of him. Ury met him with 4000 men at Alderne, near Inverness, where Montrose, posting one wing upon strong ground, and affecting to have a central body by disposing a few men among trees and bushes, led on the rest of his troops to a furious charge, and put to flight the Covenanters, amounting to twice his numbers. Baillie advancing to avenge Ury's defeat, met with a similar fate at Alford, and the victorious royalist was preparing to push his conquests to the south of Scotland, and to dissipate the parliament, which had been ordered to meet at St Johnstons.

By the influence of the Independents, that body of the English parliament and its followers, who wished for an abolition of all church government, and a levelling equality of ranks in the republic, a self denying act was passed in the House of Commons, by which the members of both Houses were excluded from all civil and military employments, except a few offices which were specified. The pretence of this act was to convince the people, that the members of parliament wished to participate in none of the profits of government, or avail themselves of the power which had been intrusted to them: the real object of its contrivers, which the Presbyterians did not sufficiently perceive or resist, was to get rid of a number of officers, whose weight was a restraint upon the levelling enthusiasm of the Independents. Essex, Warwick, Manchester, Denbigh, Waller, and Brereton, resigned their commands, and received the thanks of parliament. The command of the army was bestowed on Sir Thomas Fairfax—a man sincere, disinterested, and able in war, but of narrow genius in every thing else, and unconsciously made subservient to the deep dissimulating views of Cromwell. After obtaining, in concert with Sir Harry Vane and the other leaders of the Independents, this self-denying ordinance, Cromwell contrived to make Fairfax retain him in the command second to his own, or, in effect, to give him the first influence in military affairs. The armies, in consequence of the ordinance, were modelled anew, and an exact and rigid discipline was established. As the new officers were chiefly Independents, in whom the spiritual and military vocations were united, the soldiers were daily edified by exhortation and prayer; when they marched, the fields resounded with psalms, and wherever they were quartered the pulpits were usurped by those military rhapsodists, whose martial devotion reduced the feeble notes of the clergy to contempt. The soldiers were seized with the same rage for preaching and praying. Little success was expected from the raw officers of the new-modelled army, but their enemies were disappointed.

Proceedings of the hostile armies.

On opening the campaign at the approach of the summer of 1645, the king marched to relieve Chester, and Fairfax to relieve Taunton. The siege of Chester was raised on the report of the king's approach; that of Taunton was continued. While Fairfax was recalled by the committee of both kingdoms to attack the city of Oxford, the Scottish army was directed to advance, and oppose the king in the north. They advanced to Rippon, and learning that Prince Maurice intended to co-operate with Montrose, they turned into Westmoreland to cover the siege of Carlisle, and to prevent the danger of their native country. Leicester, for the present, attracted the king's arms; that city was stormed with great carnage, and given up to the most dreadful excesses of the soldiery. The disaster excited such clamour, that Fairfax was ordered from besieging Oxford, to march against the king; and either from necessity, or the impetuosity of Prince Rupert, it was resolved, on the part of the royalists, to give battle without waiting for some expected aids.

Battle of Naseby.

The battle of Naseby was fought between nearly equal numbers. Prince Rupert first broke the opposite wing of the enemy, but pursued too far. Cromwell bore down the wing of the royalists opposite to his own, but wisely left a detachment to pursue them, and turned upon the centre, where the royal infantry and Fairfax were continuing a doubtful combat. When Rupert returned, the battle was irretrievable. The king called out, in vain, to make but one charge more, and the day was their own; but his artillery and baggage were lost, and his infantry ruined. Fairfax improved the victory by uninterrupted successes; Leicester, Bath, Bridgewater, and other strong places, fell rapidly into his hands. Prince Rupert, who had thrown himself into Bristol, surrendered the place while the walls were entire; after which, the victors dividing, Cromwell reduced the Devises, Winchester, and Basinghouse; and Fairfax turning westward, captured the towns of the royalists, and surrounded their fugitive army in Cornwall.

The king, who had fled after the fatal field of Naseby with the remnant of his cavalry into Wales, returned with the fruitless design of joining Montrose in Scotland; but as every avenue to the north was shut against him, his last effort was to relieve the

Military affairs in Scotland.

city of Hereford, besieged by the parliamentary forces, who were deficient in cavalry to cover the besieging army. Attempting to relieve Chester, also, he was defeated by General Doyntz, and after again escaping into Wales, he returned to Oxford in despair.

Montrose, who gained two brilliant victories over the Covenanters at Alford and Aldern, was, at this time, the forlorn hope of the royal cause. Descending from the mountains after these victories with 6000 men, he advanced across the Forth, marking his progress with butchery and devastation. Baillie opposed him at Kilsyth with equal numbers; but a battle took place, in which no quarter seems to have been given to the Covenanters, and they lost above 4000 out of 6000 men. Presuming in his success, Montrose advanced to the borders of Scotland, though with numbers diminished by the retreat of the Highlanders, who went to secure their plunder among the hills, and was surprised and defeated by David Leslie, within a mile of Selkirk, among the woods of Philiphaugh. He escaped with difficulty, attended by 200 horse, and secured himself among the fastnesses of Athol; but his reputation was ruined among the Highlanders, and his chief followers, after the slaughter of his army, were consigned to the scaffold.

Battle of Kilsyth.

Montrose defeated at Philiphaugh.

1646.

To conclude the misfortunes of this campaign, the unpopular aid of the Irish Catholics, on which Charles had so much relied, was not only disappointed, but prematurely exposed to public hatred. The titular Catholic bishop of Tuam, having been killed by the Scotch at Sligo, a paper was discovered upon his person, containing articles secretly concluded between the king and the Catholics; so likely to be offensive to English Protestants, that it was thought unfit that Ormond, the king's lieutenant in Ireland, should appear in the transaction. By these articles, the possession of the church, and its revenues in Ireland, were to be given to the Catholics, who, in return, were to supply the King with 10,000 men. Glamorgan, an Irish peer, had been commissioned by the king to make these terms with the Catholic leaders; but they were not to be acknowledged publicly for the present. Glamorgan was arrested by the king's orders, when the articles were first found; and the king's knowledge of the treaty, which was declared to be a forgery, is still denied by the writers in Charles's favour. But the silence of Clarendon on the subject, and his expressions in his private correspondence, as well as the whole aspect of the business, make it incredible that Charles did not conclude the treaty, whatever might be his intentions with regard to fulfilling it.

Charles escapes to the Scottish army in disguise.

Fairfax was approaching with a powerful force to Oxford, when Charles, who had no choice but to escape or be surrounded, adopted the resolution of flying to the Scottish army. To every proposal which he had sent the parliament of treating for peace, they had answered, that they were preparing bills, of which his acceptance would afford the surest pledge of his desire to surrender. This was indeed bidding him surrender at discretion; but after the transactions which have been recorded, what terms approaching to equality could Charles expect? With two attendants, Dr Hudson and Mr Ashburnham, and disguised as the servant of the latter, Charles reached the Scottish camp at Newark, having passed through several cross roads, and having once approached so near to London as Harrow on the Hill, not without some thoughts of entering his capital, and trusting to the generosity of the parliament. This resolution, though adopted in desperate circumstances, was still connected with hopes of dividing his enemies, and of profiting by dissensions, of which few princes, in such a situation, would perhaps have failed to avail themselves. The Presbyterian church government, sanctioned by the assembly of divines at Westminster, and by the general assembly of Scotland, had been adopted in England; but the parliament refused to render the church supreme and independent of the state. The Independents combined with the Erastians in parliament, to procure a charitable indulgence of conscience, which the English, as well as Scotch Presbyterians resisted, as incompatible with the covenant. Besides this, there were causes of deep offence to exasperate the Scotch: their pay and supplies were long neglected; their cautionary garrisons in the north were demanded back; and their free quarters were refused. Since the battle of Naseby, the Presbyterian, and with that the Scottish influence, had declined in England. Charles had already maintained secret negotiations with the two factions. In a confidential letter to Lord Digby, he expressed his expectation of "drawing either the Presbyterians or the Independents to side with him for extirpating each other, so that (says he) I shall really be king again."

In an intercepted letter, written by the king to Ormond, Charles was found to declare, that he threw himself on the Scottish army, on the assurance of their assistance to restore his prerogative, and to join with Montrose, and compel the English parliament to peace. There is extant, on the other hand, a declaration of the Scottish commissioners, disclaiming, in the strongest terms, any public or private agreement whatsoever with the king. This was open, if a falsehood, to immediate detection. An agreement, it is true, had been concerted by the means of Montreville, the French ambassador, in which the English Presbyterians were consulted, by which the Scotch were to escort their monarch to their camp; but the treaty was broken, by the Scotch refusing to co-operate with Montrose, and by the want of the king's explicit promise to confirm the Presbyterian church. It may be believed, therefore, that the Scotch were sincere in their declaration to the English parliament; that Charles came among them, in consequence of no stipulation on their side to take part with him against their ancient allies; and whatever discontents might have arisen with England, such a stipulation to support Charles, without his unequivocal promise to grant them the objects for which they had taken arms, would have been at best romantic impolicy. The Scotch continued, therefore, stedfast to their original engagements; and though they withdrew to Newcastle, to prevent their return home being intercepted by the English, they obtained Charles's order for the surrender of Newark, they guarded his person with vigilance and cold respect, and professed their resolution to avail themselves of the possession of it, to obtain their desired uniformity of religion, and a durable peace.

clear that he could have well rewarded, had they been driven to exile. "You cannot," said Charles to the Independents, "you cannot do without me; you will fall to ruin if I do not sustain you." This, it is true, was but a temporary obstinacy, but his hopes were for ever blasted: The Independents, by the disclosure of an intercepted letter to the queen, in which the insincerity of his offers to that party were avowed, as well as his intention to close with the Scotch, with whom, as with the English Presbyterians, he had been maintaining a negotiation at the same time.

The king escapes from Hampton court to the Isle of Wight,

His situation at Hampton court became every day more irksome and formidable after the failure of this treaty with Cromwell and the leaders of the army. Prompted by this inquietude, he escaped on the 11th of November, with three attendants, Berkely, Ashburnham, and Leg, and travelling all night reached Titchfield next day, where it was impossible he could be concealed. Having attempted in vain to escape by sea, he was obliged to entrust his personal safety to Hammond, the governor of the Isle of Wight, a man notoriously dependent on Cromwell, who conducted him to Carisbrook castle, with demonstrations of respect, but in reality as a prisoner.

Where he is confined in Carisbrook castle.

During the king's confinement in this forlorn situation, the rising power of Cromwell was threatened by the turbulence of his own instruments, the agitators of the army, who began to project the wildest forms of popular government. But the levellers, (so they were called), were speedily cured of their enthusiasm, by the rough, but dextrous hand of Cromwell, who, after drawing the whole army out in review, put himself at the head of some faithful troops, boldly seized the ringleaders of the mutineers, and by a severe example reduced the rest to obedience. An opportunity was embraced by Charles to renew his correspondence with the general officers, but his emissary was received with contempt.

Charles offers terms to the parliament.

Charles began a new negotiation with the parliament, by communicating in a message from Carisbrook castle, an offer to resign, during his own life, the power of the militia, and the nomination to all the great offices of state, provided that after his demise, these prerogatives should revert to the crown. The parliament were now certainly subservient to Cromwell, the Independents, and the army, and their treatment of this affair was severe, as might be expected, from the victors to the vanquished.

Proposals made to the king by the parliament.

They returned him four proposals, as preliminaries to all treaty; that the command of the militia should be vested in the two houses for twenty years, and should not be exerted afterwards without their consent; that the peers created at Oxford should be deprived of their titles; and the parliament be empowered to adjourn from place to place. These terms were severe; but since the covenant was omitted, and the church reserved as an article susceptible of future modification, they at least spared the king's conscience in point of religion. Instead of closing with these preliminaries, Charles, who was not so closely watched at Carisbrook castle but that he
could maintain a clandestine treaty with the Scotc
secretly agreed with their commissioners to confi
the covenant in parliament, and to establish the Pr
byterian church, till it should be revised by the a
sembly of divines. The Scotch, in return, engag
to assert and restore his authority by arms; the a
of the Presbyterians in England, of Ormond in I
land, and of the English royalists, was expect
When the English commissioners received his refu
to the preliminaries, his guards were redoubled, a
a resolution was adopted at the instigation of the I
dependents, that in the settlement of the nation
farther addresses should be made to Charles, nor a
applications received from him. He was in effect
throned.

This treaty of the Scotch with Charles was aft
wards called the Engagement; but though disc
tents had multiplied between the two kingdoms,
was found no easy matter to impose the engagem
on the whole nation. The Scotch royalists, un
Traquair and Callender, (Montrose being absen
were impatient for action; the moderate Presby
rians, under the Duke of Hamilton, wished to rest
the king and the power of the English Presbyteria
Argyle, at the head of the wild Presbyterians, a
seconded by the church, denounced the engagem
as a deadly breach of the covenant, and prote
against hostilities with England. Hamilton was a
pointed general of the new levies for the invasion
England, as David Lesly and the other offic
could not act without the church's sanction. In
mean time, the English royalists and Presbyteri
now uniting against their military tyrants, rose
Wales, and in Kent and Essex. In the former p
of the country, they were overwhelmed by Cr
well, in the latter by Fairfax. But during the
sence of the army, the Presbyterians resuming t
freedom in parliament, opened a last treaty w
Charles. Hamilton, an incapable leader at the h
of an undisciplined army, entered England, but di
not unite his forces with those of the royalists un
Langdale, because the latter had not taken the co
nant. Cromwell did not fear, with 8000 men, to
tack their superior, but divided forces. Of Ha
ton's army, only a small body under Callender, w
disdained to surrender, made their escape back
Scotland. New levies were raised by the Earl
Lanark, Hamilton's brother; but the Earls of Ar
and Lothian, in the Highlands, and Cassilis and
linton in the west, marched with their *wild Pres*
terians to Edinburgh, and inviting Cromwell, a
victor on the borders of England, to the metropo
conducted him thither in triumph; and suppressi
the engagement made by their countrymen w
Charles at Carisbrook Castle, renewed with the E
lish general the solemn league and covenant.*
the absence of Cromwell, the treaty between Char
and a parliament unintimidated by military pow
continued to proceed. After a long delay, he agre
to surrender the militia, the chief offices of state, a
the government of Ireland for twenty years; to a

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* This expedition of the Covenanters to Edinburgh, was called the Whigamore's inroad, from a word employed by the w tern peasants in driving horses, the origin of the appellation Whig, of which British patriots have been so proud. Acc ing to others, the Covenanters were called Whigs, from whig or whey, their customary drink.

£100,000 for the court of wards to ac-
lge the parliamentary great seal, and to con-
two houses in the creation of peers. How-
ling that the royalists should compound for
questrated estates, he refused to allow the
tion and exile of seven faithful adherents,
ie parliament excepted from amnesty. If ever
re "*his grey discrowned head,*"* it is for
isal, dictated by the remembrance of Straf-
His refusal to concede the abolition of Epis-
was another point on which he split with
nt in this last chance for safety and the peace
untry. When we recollect the conduct of
V. in a similar situation, and that he lost no
or probity as a man, nor for gallantry as a
a public profession of a religion repugnant
art, we cannot but wish that Charles, to use
ls of a spirited historian, had preferred the
elfare and his own interest, to the vain and
le forms of religion. But allowing all pro-
his scruples, the merit of Charles is done
en in this point, by the discovery, from his
respondence, of his being utterly insincere in
y. His secret, but fixed intention, was to
Ireland and renew the war. In one letter,
describes his motives to the Scottish treaty:
eal freely with you, the great concession I
day, was merely in order to my escape, of
if I had not hopes, I would not have done;
I could have returned to my straight prison
reluctance; but now, I confess, it would
y heart, having done that which nothing but
e could justify."

this protracted treaty could be finished, the
urned exasperated by a second civil war, and
g vengeance against the king, whom they
d its author. They demanded justice, not
r delinquents, but on Charles himself. His
as again seized by the army, and removed
wport to Hurst Castle, on the opposite coast.
nmons, although they had voted his conces-
atisfactory, now made a last effort in their
ence, and in that of Charles. They voted
concessions were satisfactory. But next
nel Pride, at the head of two regiments,
d the house, and excluding by violence about
bers, and leaving only 60 determined Inde-
, enforced a vote that the late concession to
had been illegal, and that their general's
was just and necessary. This violence upon
it, was called Pride's purge, and the rem-
voters were called the rump parliament.
assumption of government by a lawless
ary power, the awful and unexampled spec-
a king publicly tried and condemned, by a
his own subjects, closely succeeded. The in-
m the 6th to the 20th of January 1649, was
preparations for his trial. A high court of
as appointed by ordinance, consisting of 133
named indifferently, from the commons, the
d the citizens, noted as well affected to the
vealth. Bradshaw was appointed president,
licitor for the people of England. The
court assembled in Westminster hall. Charles was conveyed from Hurst Castle to St James's. After he had been conducted by the mace bearer, to a chair placed within the bar, he arose, without deigning to uncover or shew any mark of respect for the court; and when arraigned by the solicitor, he touched his shoulder thrice with his cane, and admonished him to desist. He was accused of waging and renewing war against the parliament and the people; to establish tyranny instead of the limited regal power, with which he had been intrusted. When his defence was required, he demanded by what authority they sat upon him in judgment; said that he was responsible to God alone; that he was their lawful and hereditary sovereign; that he had been seized by a military force in violation of public faith, while engaged in a treaty with the two houses; that the Lords had not concurred in this violence, and that the Commons, in whose name he was accused, themselves had been subdued by force of arms. That allowing the people had a right to try him, their consent ought to be obtained from the highest to the lowest; and, finally, that refusing to plead before an unlawful court, for actions which he could easily vindicate, he spoke not for himself alone, but in the name of the people of England. Thrice he was produced at the bar, and thrice denied the authority of the court. The evidence of his appearing in arms against the people was then gathered; and after his last request to have a conference with the two houses was refused, (it was supposed for the purpose of resigning his crown to his son,) sentence of treason was pronounced upon him, that his head should be separated from his body on the third day.

The king tried in Westminster hall,

And condemned to death.

France, Holland, and the Scotch, interested themselves to avert his impending fate; the Presbyterians raised a feeble cry in his behalf.

Charles behaved, during the whole trial, with all the dignity that became him as a man, a Christian, and a monarch.† Dr Juxon, late bishop of London, attended his devotions. He was lodged at St James's, and the front of Whitehall was selected as the place of his execution. On the morning of the fatal day, he rose at an early hour after an undisturbed repose, and having concluded his devotions with the eucharist, was conducted on foot through the park, which was lined with guards, to Whitehall, where an apartment was prepared for his reception. After a slight refreshment he ascended the scaffold, and surveyed, without emotion, the awful preparations for death. Despairing of being heard by the multitude, (as the scaffold was surrounded to a great depth with troops,) he addressed his discourse to the officers and attendants. He protested, that the war on his part was strictly defensive, and without accusing parliament, he blamed the intervention of wicked instruments. His death, he confessed, was a merited retribution for consenting to Strafford's. He forgave his enemies, admonished the people to return to loyalty, and attesting his dying attachment to the English church, laid his head on the block. An executioner, who wore a vizor, severed his head from his body at one stroke. Another in the same disguise held it

Magnanimous conduct of the king.

His execution.

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* A truly pathetic expression used in his verses at Carisbrook Castle.

† See the article CHARLES.

Lothians, to deprive the English of subsistence. Cromwell tried every expedient, without success, to bring Lesly to a battle. The king came to the Scottish camp, where his presence exciting the jealousy of the fanatical clergy, they ordered him immediately to leave it. They also purged it of 4000 Malignants and Engagers,* the soldiers of chief credit and experience in the nation; and being now an army of saints, concluded they could not be beaten. They murmured at their prudent general. They murmured also at the Lord, for his delays in delivering them, and plainly told him, that he should no longer be their God, if he would not save them from the sectaries. An advantage having offered to Lesly on Sunday, they would not suffer him to take it for fear of Sabbath-breaking. Cromwell was in a bad situation, straitened for provisions, and reduced in numbers by sickness, he retired to Dunbar. Lesly followed him, and encamped on the heights of Lammermuir above the town, taking possession of the passes by which the enemy could retreat to Berwick. The English general had come to the desperate resolution of sending his foot and artillery by sea to England, and of breaking through with his cavalry to Berwick. But the madness of the Covenanters snatched a bloodless victory from Lesly, when he was on the eve of seizing it. The ministers, who had been wrestling, (as they termed it,) with the Lord in prayer, fancied that they had at last obtained the victory, and forced their general, in spite of his remonstrances, to descend to the plain and attack the English. When Cromwell discovered, through his glass, an unusual movement in the Scottish camp, "they are coming down!" he exclaimed, "the Lord hath delivered them into our hands." They continued, during a tempestuous night, to descend from the hills: their matches were extinguished, and their undisciplined numbers were exposed to the skill of veteran troops, who had been carefully covered from the storm. They were, indeed, delivered into the hands of Cromwell. Three thousand were slain, and nine hundred taken prisoners. The Scottish parliament, taught by this disaster the necessity of an union of all parties, resolved, in their meeting at Perth, to call in the aid of the Malignants and Engagers, on condition of a repentance of errors, which was ridiculously dictated and adopted. But two shires in the west of Scotland protested against this admission of the ungodly to co-operate in the cause, and withdrew from the general levy five thousand men.

Tired of the gloomy restriction in which he was held by the Scottish clergy, Charles endeavoured to make his escape to a body of royalists in the Highlands; but he was overtaken, and persuaded to return. This incident, which was denominated the *start*, procured him better treatment, from the fear of losing him. His coronation was performed at Scone with great solemnity. The crown was placed on his head by the Marquis of Argyle, whose own head was afterwards the forfeit.

Charles encamped at Torwood, and his generals resolved to pursue the same cautious conduct which had been observed by Lesly, and fatally over-ruled by the clergy. The town of Stirling was behind; the north supplied them with provisions; and entrenchments protected their front; but their position was by no means so favourable as in the former year at Edinburgh; and Cromwell, unable to force them in front, yet, by defeating a detachment on their flank, got between them and the north, and Charles adopted a resolution sufficiently desperate, which Argyle vainly endeavoured to oppose;—he marched to the south, to carry the war into England, relying on the English royalists for support; but neither these nor the Presbyterians, though they hated Cromwell, would join an army of fugitive invaders. The militia opposed him in front, and Cromwell hung upon his rear. At last, the Scottish army, who had thrown themselves into Worcester, were attacked by Cromwell with 30,000 men, and, after a desperate contest, were all either killed or taken prisoners. The king, escaping with difficulty (see the article CHARLES II.) from the field of battle, after a multitude of adventures, at last reached Shoreham in Sussex, where a vessel transported him to France. The executions of the royalists, after this suppressed insurrection, were directed, in consequence of sentences by court-martial; for Cromwell had already found, that a trial by jury would not support tyrannical usurpation. By the strength of the usurping government, a total pacification was produced at home. Ireton proceeded with 30,000 men successfully in the work of subduing Ireland, till his death.

Charles carries the war into England.

Sept. 3. The Scotch are completely routed at Worcester.

Proceedings in Scotland, and in the colonies.

Ludlow, his successor in the command, continued to push the advantages, and to gain an easy victory. Monk, who had been left with 7000 men to overawe Scotland, reduced the whole kingdom to subjection, and an union with England was pressed upon the Scotch at the point of the sword. Of ninety Scottish towns and counties to which writs were issued to send representatives to the English Parliament, only thirty complied. Argyle alone acted with public spirit amidst the calamities of his country. He retreated to his estate, where he fortified himself for some time; and though he acceded, at last, to an union with England, he was the last man in Scotland who yielded to Monk. Sir George Ayscue was sent to reduce the colonies; all of which, except New England, had declared for the king; and Bermudas, Antigua, Virginia, and Barbadoes, were soon reduced. With equal ease were Guernsey, Jersey, Scilly, and the Isle of Man, subjected; and the sea, which had been infested by the privateers of those islands, was rendered safe to English commerce. The Countess of Derby, who defended the Isle of Man, had the glory of being the last person in the British dominions who submitted to the victorious commonwealth.

1652.

The new government next exerted its energies abroad. The Dutch had shewn symptoms, during the late civil wars in England, of attachment to the royal cause. It was long before the parliamentary

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* The Malignants were those suspected of Popery or royal principles. The Engagers were that party who had made the treaty or engagement with Charles I. in Carisbrook Castle.

War with the Dutch.

envoy could obtain an audience of the states-general. Dorislaus, a Dutchman by birth, but who had resided in England, and taken an active share in the king's death, had been assassinated by some English royalists in Holland, who had not been pursued by the Dutch government with such rigour as was expected. The prospect of rich prizes from the Dutch, and of diverting men's minds from tyranny at home by splendid achievements, determined Cromwell and his parliament to change their proposed alliance with their fellow-Protestants into a furious war.

Naval battles with the Dutch.

The Dutch, though they dreaded and deprecated a war, prepared a fleet of 42 sail to protect their navigation, which their famous admiral, Tromp, commanded. Blake, the English admiral, met him in the straits of Dover, and a battle was fought, in which it is not known which party commenced hostilities, with no decisive victory on either side. The Dutch fleet, however, retired to their own coast, and their government still negotiated for peace. The English demanded immediate reparation for all the damages they had sustained; on the refusal of which, they declared war.

Aug. 16.

Feb. 15.
1653.

Sir George Ayscue and the gallant De Ruyter fought another and still severer battle off Plymouth, in which the Dutch had the superiority of bringing off their convoy, and leaving the English so shattered, that they could not pursue them. Blake was more successful in an action off the Kentish coast with the squadron of De Ruyter and De Wit, in which he took three of their ships, blew up one, and obliged the enemy next day to sail for their own harbour. Tromp, seconded by De Ruyter, met near the Goodwins Sands with Blake, whose fleet was inferior to the Dutch, but who resolved not to decline the combat. The Dutch had the advantage, and night came opportunely to save the English fleet, after two of their ships were taken, two burnt, and one sunk. But preparations were instantly made to wipe off this disgrace; and, in a battle which was fought early in the spring of the succeeding year between Blake and Tromp, with De Ruyter under his command, the Dutch lost eleven ships, whilst only one of the English was sunk.

The Dutch sue for peace.

The Dutch were so far humbled by these and other disasters, as to sue for peace. The Parliament, however, gave them a very unfavourable answer. They studied to keep their navy on foot as long as possible, judging that, while the force of the nation was exerted by sea, it would diminish the power of Cromwell by land. Cromwell perceived their designs; but, being secure in the attachment of the army, resolved to seize the sovereign power. By his instigation, the officers presented a petition, demanding their arrears, and redress of grievances, desiring the parliament to consider how many years they had sat, and what promises they had made to establish a free constitution. The house was highly offended; they appointed a committee to prepare an act, pronouncing such petitions high treason. The officers made a warm remonstrance, and the parliament an angry reply. Cromwell, on being informed of this reply, started up in the council with an appearance of fury, and, turning to Major Vernon, cried out that he was compelled to do a thing that made the very hairs of his head stand on end. Then hastening to the house with 300 soldiers, and with the marks of violent indignation on his countenance, he entered, took his place, and attended to the debates for some time. When the question was ready to be put, he suddenly started up, and began to load the parliament with reproaches for their robbery and oppression of the public. Then stamping with his foot, he gave the signal for the soldiers to enter; and, addressing himself to the members, "For shame! (said he), get you gone: give place to honester men. I tell you, you are no longer a parliament; the Lord has done with you." Sir Harry Vane exclaiming against his conduct, "Sir Harry Vane!" (cried Cromwell with a loud voice), "O Sir Harry Vane! the Lord deliver me from Sir Harry Vane!" Taking hold of one of the members by his cloak, "thou art a whoremaster," cried he; to another, "thou art an adulterer;" to a third, "thou art a drunkard and a glutton;" and "thou an extortioner," to a fourth. "It is you," continued he, to the members, "who have forced me to this." Then, pointing to the mace, he exclaimed, "take away that bauble!" after which, turning out all the members, he ordered the doors to be locked, and returned to Whitehall with the keys in his pocket.

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Though Cromwell had, by this transaction, seized in effect upon unlimited regal power, he was willing to give his subjects a parliament. It was such a parliament, however, as should be entirely at his devotion, and one of his own nomination. By the advice of his creatures, his council of officers, he sent summonses to 144 persons in England, Scotland, and Ireland, to assemble as the representatives of the nation. This parliament, composed of the dregs of fanaticism and ignorance, was denominated Barebones parliament, from the name of one of its members, a leather seller, whose assumed name, by a ridiculous usage of the age, was Praise God Barebones. They began by choosing eight of their number to seek the Lord in prayer, while the rest deliberated on substituting the law of Moses, instead of the established code.

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The usurper did not find even this miserable assembly entirely flexible to his will, and as the nation despised them, Cromwell had no motive for retaining them. He had carefully chosen many among them, who were entirely devoted to his interests, and these he commanded to dismiss the assembly. They accordingly met by consent earlier than the rest, and observing to each other that this parliament had sat long enough, they hastened to Cromwell, with Rouse their speaker at their head, and resigned their authority into the hands which had conferred it. Cromwell accepted their resignation with pleasure; but being told that some of their number were refractory, he sent Colonel White to clear the house of such as ventured to remain. They had placed one Moyer in the chair by the time that the colonel arrived, and he being asked, by White, what they did there? replied, "seeking the Lord." "Then you may go elsewhere," cried White, "for, to my knowledge, the Lord has not been here these many years." Cromwell was now declared the protector of the commonwealth of England, and instituted in his new office in the palace of the kings of England. He was addressed by the title of Highness: A council was appointed, which were not to exceed 21, nor to be under 13 persons. They were to enjoy their offices for life, or during good behaviour; and, in case of a vacancy, the remaining members named three, of whom the protector chose one. The protector was appointed supreme magistrate of the commonwealth; from him were all magistracy and honours derived; he could pardon all crimes but murder or treason, and all forfeitures devolved to him. The right of peace, war, and alliance, rested in him; but in making these, he was to act by the advice of his council. The power of the sword was vested in him jointly with the parliament; and he was obliged to let a parliament sit, at least for five months, every three years. The bills of parliament were to pass as law, even if the protector did not give his assent to them after 20 days. A standing army of 20,000 foot and 10,000 horse were to be maintained, and in preventing their diminution alone, the protector was to have a negative. During the intervals of parliament, himself and his council were to exercise a power of passing laws. To this contradictory constitution it is evident that Cromwell never needed to pay deference, as long as the army remained at his disposal.

As he was feared at home, so he made himself respected abroad. The Dutch, after many severe conflicts, were completely humbled at sea, in a battle fought the 29th of July, between Blake and Tromp, in which the latter fell, and the enemy last 30 ships. They sued for peace, and obtained it, on consenting to pay deference to the British flag, to abandon the interests of young Charles, and to pay a fine to the English East India Company.

1654.

Either from want of pecuniary resources, or from a wish for popularity, Cromwell resolved to give the nation a parliament of a much more respectable nature than the last. But this parliament, from the circumstance of its being fairly elected, so as to represent the feelings of the nation, became only the organ of its discontents. And so severe was their investigation of his conduct, and so free their censures, that, after having extorted from them, by force, a recognition of his authority, he wae obliged to dismiss them before they had sat the time ordained by the new constitution. The royalists, in their joy at the odium which this arbitrary measure occasioned, forgot that there was either a terror of the protector's arms in the country, or men less attached to royalty than themselves, they projected a conspiracy, which the dexterity of the protector crushed in the bud. Only 200 of them convened at Salisbury, who were speedily suppressed by a troop of horse. The affair was a sufficient pretext to Cromwell for raising a heavy tax, by way of punishment, on the whole party of suspected royalists, or rather on all individuals whom this rapacious officer chose to pronounce disaffected. Ten major generals were appointed to raise this tax, and the kingdom was divided into so many military jurisdictions. The iniquitous tax was levied, without proof or trial of delinquency, at the mercy of those minions of his usurpation.

Cromwell's ambition was not satisfied with the barren and disputed glories of the Dutch war; but he was impelled, by the hopes of plunder and of additional renown, to signalize his arms against Spain. After he had equipped two squadrons on the unknown destination, of which the attention and fears of all Europe were fixed, one of them, consisting of 30 capital ships, sailed to the Mediterranean, and overawed the powers of Italy. Then returning westward, restrained the piracies of the African States. Blake, who commanded this armament, having received a defiance from the Dey of Tunis, who shewed him his three castles and bade him do his utmost, drew up his ships close to the fortress, and tore them in pieces with his artillery; after which he burned every ship that lay in the Tunisian harbour. The other squadron under Venables and Penn, was not so splendidly successful. Those commanders having made an attempt on Hispaniola with 9000 men, were repulsed with loss by the Spaniards; but afterwards, steering to Jamaica, they took that island without a blow. Yet so little was this valuable conquest esteemed, that, on their return home, the commanders were committed to the Tower for their failure of the primary object of the expedition.

Successes of the British fleet.

The Spaniards declare war.

The Spaniards having declared war, in consequence of this unwarrantable violation of the treaty, Admiral Blake lay for some time off Cadiz, in expectation of intercepting the Plate fleet; but was at last obliged, for want of water, to sail towards Portugal. Hearing that the Spanish fleet of 16 ships of immense value had taken shelter in the Canaries, he pursued them thither, and sailing into the port of Santa Cruz, burnt them in the face of seven castles which defended the harbour. A sudden change of the wind brought him safe back from before the batteries. Leaving Europe astonished at this act of fortunate temerity, Blake returned home, and died within sight of his native shore, (see BLAKE.) The whole of Europe was either overawed by the arms of the protector, or willingly courted his alliance. He obliged the Duke of Savoy to abstain from the persecution of the Protestants, and dictated the same toleration to France. Yet when Catholic powers interceded for the Catholics in Britain, he gave them an imperious refusal.

Blake burns the Spanish fleet in Santa Crus.

Domestic administration of Cromwell.

Amidst external successes, the protector's domestic administration was in general upright. He erected, it is true, high courts of justice, for the trial of offensive persons, whom he knew that an English jury would not be servile enough to condemn. He set aside the verdicts of juries; and in the case of Lilburne and others, inflicted unlawful punishments; but his treatment of those enemies of his government, is not to be compared, in the most distant degree, with the enormities of the star chamber; and except in some political instances, the administration of justice was unexceptionable. He maintained a national church, which was neither Episcopal nor Presbyterian. A number of commissioners called triers, laymen, ecclesiastics, presbyterians, and independents, examined those who received holy orders, presented to all livings, and inspected the lives, doctrine, and behaviour of the clergy. The candidates were not puzzled with questions in Greek and Roman erudition, but their advances in grace were severely scrutinised. The independents were chiefly favoured by him, and such of that sect as could digest his usurpation were mutually attached to him; but he tolerated all sects except prelatists and papists. As he found many enemies among the military, though the army in the main supported his power, he established a militia over the counties, to form a check to that formidable body.

Government of Scotland.

Scotland was governed by a council of state, of which Lord Broghill was president, appointed to reside in Scotland subordinate to the protector and his English council, and strictly responsible to the former. Of nine members, only two were Scotsmen. Its powers, which were more extensive than those of the privy council, comprehended the civil administration, the disposal of the revenue, and the nomination of inferior judges. The people, however, had no share or interest in the government. To Barebones parliament only five Scotch members were summoned; and though by the instrument of government, which first declared Cromwell protector, 20 Scotch representatives were appointed, yet in succeeding parliaments the representatives were either English officers or temporizing Scotsmen, in whom the protector could confide.

Revenue and military establishment in Scotland.

Cromwell's military establishment in Scotland amounted, during the insurrection of Middleton, to 18,000 men, but was reduced to 9,000, exclusive of some considerable garrisons. Twenty-eight garrisons were maintained in the forts and castles, but the principal forces were stationed at Leith, Ayr, Inverness, and Glasgow, where citadels were erected, and at Inverlochy castle, which overawed the Highlands. An annual land-tax of £120,000 sterling was first imposed, but found intolerable, and reduced to £72,000. In 1656, the Scottish customs amounted to £4,637, and the excise to £34,313; but they increased in three years, by diligent collection, to £62,000 sterling. The public revenue at Cromwell's death was £143,642; the expenditure, civil and military, £286,458. The annual balance, £142,806, was remitted from England—so far was Scotland from being a lucrative conquest. The decisions of Cromwell's judges in Scotland, of whom four out of seven were English, were long remembered as the purest and most vigorous dispensations of justice which the nation had enjoyed.

Government of Ireland.

The administration of Ireland, which was entrusted to the fanatic Fleetwood, was more violent and severe. About five millions of acres, forfeited by the popish rebels or by the adherents of the king, were divided among Cromwell's soldiers, and partly among the adventurers, who had lent money to the parliament. Examples of a more sudden or violent change of property, are scarcely to be found in any history.

Another parliament summoned.

After establishing a government so much feared both at home and abroad, Cromwell thought he might now venture to meet the representatives of the people, and summoned another parliament. But though he tried every art which his new model of representation allowed him, to have his creatures elected, it was only by setting guards at the door of the house, and permitting none to enter who did not recognise his authority, that a servile majority could be procured. From these, indeed, on the motion of alderman Pack, after the suggestion of Jephson, he received an offer of the crown, which it is well known he wished to have been pressed upon his scruples and timidity. But, independent of the vengeance of the army, and of Lambert, Harrison, and other general officers, whose dismission he meditated, he feared the enmity and alienation of many who were most devoted to him, if he should betray his ambition by this acceptance. Fleetwood, who had married his daughter, and Desbrowe, who had married his sister, threatened to abandon him if he assumed the crown. A mutiny in the army might be looked to as the consequence; and assassination, it is said, was determinedly prepared for him. After a long and doubtful agony, Cromwell refused the crown, though solemnly tendered to him.

The protectorship had been first sanctioned by what was called an instrument of government. The present parliament new-modelled the constitution, by framing an humble petition and advice. By this deed, the powers of the protector were in some instances enlarged, in others diminished. He had the power of nominating his successor; he had a perpetual revenue assigned to him; a million a year for the pay of the fleet and army; 300,000*l.* for the civil government; and he had authority to name another house, who should enjoy their seats during life, and exercise some functions of the former House of Peers. But he abandoned the power of framing laws with his council in the intervals of parliament. He was inaugurated anew, in Westminster Hall, in the most solemn manner.

The state of domestic affairs did not take off his attention from those abroad. He supported an alliance which he had formed with Sweden, and joining with France against Spain, he sent 6000 men, under General Reynolds, to the continent, who did honour to the military character of England. After the decisive victory of Dunes, Dunkirk was delivered to Cromwell, who put an English garrison into it.

The system of his foreign politics was bold but unwise; had he lived longer, he would probably have been the accessary means of accomplishing, a century sooner than it has happened, that conquest of the low countries by France, which has been since followed by the subjugation of Europe. Amidst this success and splendour, he was conscious of being secretly detested, and his situation became every day more alarming. A conspiracy of the royalists, which Ormond came over to foment, was indeed detected, and Ormond was obliged to fly; but the spirit of discontent was not eradicated by the punishment of those who were convicted. Harrison, Lambert, and the other discarded officers of the army, and the whole sect of the Millenarians, were cherishing plans for his destruction; and Sindercome, who had undertaken to assassinate him, was with difficulty condemned by a jury. He had not even domestic consolation; for his own family had so vehemently embraced republican principles, that they could not, without indignation, behold him invested with despotism; and Mrs Claypole, his favourite daughter, upbraided him on her death-bed with all the crimes of his ambition. A pamphlet, of uncommon eloquence, entitled, "*Killing no Murder,*" was written by Colonel Titus, to prove, that his as-conduct, and promised for the future to co-operate with the lord mayor and common council, in such schemes as they should approve.

Proceedings respecting a free parliament.

The commons used every effort in vain to detach Monk from his new alliance with the citizens; some of them even promised to support his usurpation of supreme power; but his resolution was to make them restore the secluded members. These, when they took their seats, proved the majority, and the rump party thought proper in their turn to withdraw. The victorious restored party, after enlarging and confirming Monk's commission, and voting support for the fleet and army, dissolved themselves, and gave orders for a new election. Monk, in the mean time, expelled from the army all the officers who would not engage to obey implicitly the orders of the ensuing parliament; and dispatching Colonel Ingoldsby against Lambert, who had escaped from the Tower, and was drawing together the malcontents, made that general surrender prisoner, and dispersed his few followers. Though the calling a free parliament, and restoring royalty, were regarded, from the known temper of the nation, to be the same measure, yet Monk had not hitherto declared his specific purpose. Morrice, a gentleman of Devonshire, a man of studious and sedentary habits, was his only confident. Sir John Granville, who had a commission from the king, having applied to Morrice for access to Monk, and having twice refused to deliver his message to any but the general himself, was at last entrusted with a verbal answer to the king, revealing the general's design of the restoration, and giving advices for his journey to England. By this advice Charles escaped rapidly to Breda: had he protracted his journey a few hours, it was thought the Spaniards would have detained him as a pledge for the restoration of Jamaica.

Monk reveals his design of restoring Charles.

The elections for the new parliament went every where in favour of the king's party. The Presbyterians had the kingdom almost entirely in their hands; some of their leading men, it is true, began to speak of severe restrictions, but the general opinion was, for admitting the monarch on easy terms. When Parliament met, however, the caution of Monk, and the fear of undetermined events, kept the members in such awe, that for several days no one dared to make mention of the king's name. At last, Monk directed Annesly, president of the council, to inform them, that one Sir John Granville, a servant of the king's, was at the door with a letter from his majesty. The loudest acclamation followed,—Granville was called in. The letter, accompanied with a declaration, was greedily read. Without delay or dispute, a committee was appointed to answer it. It was voted, that the letter and declaration should be immediately published.

Parliament meets, and receives a letter from the king.

From Breda Charles proceeded to Scheveling, where Admiral Montague coming in sight with his fleet, without waiting for orders from parliament, tendered his loyalty to the king. When he disembarked at Dover, he was received by Monk, whom he cordially embraced; and he entered London amidst the loudest acclamations on the 29th of May, which was the birth-day of his 30th year.

Entry of Charles into London, May 29.

The temper and manners of Charles were easy and familiar; and his character, which experience discovered to be perfectly worthless, was at first appearance popular and respected. To this delusion, the reflux of public opinion from republicanism to loyalty, certainly contributed. The parliament was devoted to him, although composed of many members who had torn the crown from the head of his father. Yet these once popular leaders might now be strictly styled loyalists, since they implored pardon in the name of the nation for the guilt of the late rebellion. Several of those apostate republicans were brought into office; three of the most noted were Hollis, Annesly, and Cooper, afterwards Lord Shaftesbury. To conciliate the most numerous body of the dissenters, the king chose two Presbyterian ministers for his chaplains. The forts were dismantled, and the army reduced to a few thousands. Men of abilities filled the important offices of state. The treasurer's staff was given to the virtuous Southampton; Sir Edward Nicholas was made secretary of state; and Lord Clarendon, a wise and able, though in religious matters a narrow-minded statesman, was his chancellor and prime minister.

Much praise has been given to Charles for promoting the bill of indemnity, which was passed by this first parliament, respecting those concerned in the late regicide; a bill from which so few were excepted, and of those few a still smaller number were consigned to punishment. But the truth is, that the most of the exceptions from this indemnity were illegal and disgraceful. The king published a proclamation, ordering the late king's judges to surrender within nineteen days, otherwise they should receive no pardon. Scrope, who surrendered on the faith of this proclamation, which certainly implied a promise of mercy, was put to death. The execution of the military officers who attended the execution of Charles I. was an act equally abhorrent to law and justice. The estates of Cromwell, Ireton, and other dead regicides, were confiscated, and their bodies, by a weak and indecent act of revenge, were hung upon a gallows. This vindictive spirit extended even to the memory of the gallant Blake, whose remains were insulted. After the bill of indemnity, the next business that came before parliament, was the settlement of the king's revenue, which was fixed at L.1,200,000; a sum greater than any English monarch had before enjoyed. There was not, indeed, time to settle the funds from which this revenue was to be raised; for the parliament was dissolved in December 1660, after having sat for seven months since the Restoration.

The ministry of Clarendon exhibits by far the least exceptionable part of Charles's reign, yet the religious views of that minister were narrow and uncharitable; and while the king, in a public declaration, promised entire toleration, and even some share in ecclesiastical benefices, to the Presbyterians, it was far from the intentions of the ministry to preserve such regard for them. The madness of the Millenarians afforded them a pretext for confounding all the enthusiastic and dangerous sectaries with the Presbyterians, who were truly loyal. One Venner, an insane enthusiast, at the head of 60 armed followers like himself, who believed themselves invincible and invulnerable, proclaimed Jesus King, and terrifying all London, committed an unprovoked murder. They retreated to Cane Wood on being attacked by the train bands, but returned and traversed the city once more. At last, they were overpowered in a house to which they retired, and those who were left alive were brought to execution. The pretext was greedily embraced by the high church party, to confound the Presbyterians with sectaries the most obnoxious in politics.

Affairs in Scotland hastened with a still quicker pace to the establishment not only of monarchy, but of despotism in church and state. The compliant Scottish parliament, annulled all laws which had passed since 1633; they declared the covenant unlawful, and voted a revenue to the king of L. 40,000 a year. The lords of articles were restored; and it was determined, at the instance of Middleton the Scottish minister, and with the advice of Clarendon, to restore prelacy in that kingdom,—a measure pregnant with calamity.

As Scotland had not been included in the restored monarch's promise of amnesty, it was deemed expedient to make examples of severity in that kingdom. Argyle suffered death after an iniquitous trial: the man who had been the last to submit to Cromwell in Scotland, and who, when Charles was proclaimed in Scotland, had placed the crown on his head. Johnstone of Warriston suffered two years after.

A new English parliament met on the 8th of May 1661, in which only 56 members of the Presbyterian party had obtained seats; so successful had been the efforts of the court to secure a majority of the zealous royalists and high-churchmen. The acts of this parliament were such as might have been expected from their principles. All coercive power, even in both houses united, over the person of the king, was renounced. With the command of the militia, the power of the sword was restored to the crown. This was a lawful concession to the supreme magistrate; but the liberty of the subject was submitted to be trampled under foot, by the act which empowered Charles to purge corporations of magistrates whose principles he suspected. The test to which their loyalty was submitted, was declaring the unlawfulness of any resistance to the king. The doctrine of non-resistance was also introduced into the tenets of the church, and enjoined on all its members. The church of England was re-established as it stood before the civil wars; and, as the old persecuting laws of Elizabeth were revived, the king's promise of indulgence to tender consciences was completely broken. Charles was in his heart a papist, as far as he possessed religion. This was suspected, but not yet known; but, as he professed himself zealously attached to the English church, it was voted a crime by this obsequious parliament to deny the episcopal faith of his majesty.

When the act of conformity passed in 1662, the parliament, in the height of its loyalty, ventured to check the wishes of the sovereign; but this deviation from their general slavish spirit was for no charitable object. Charles, for the sake of the Catholics, was desirous to exercise his dispensing power; but the parliament urged him to recal his declaration of indulgence, and let him know, that the dispensing power which he claimed was not a part of his prerogative. The intoxication of loyalty, however, began to wear off from a multitude of causes. The act of uniformity, by which 2000 of the Presbyterian clergy were ejected from their livings, may sufficiently account for the alienation of that body of dissenters. Other acts of the same kind, as they struck at all dissenters whatever, enraged and united them against government, already perjured in its promise of toleration. Of the zealous churchmen, some already suspected the popish principles of Charles:

Unpopular proceedings of the king.

The royalists, who had served him, saw him squandering, on infamous pleasures, the money that might have rewarded their losses in his service; and complained, that the act of oblivion was extended only to his friends. After the army had been dismissed, perpetual and groundless jealousies had been kept alive of the disbanded officers. On the trifling insurrection of Venner, they were insultingly ordered to remove from London. From being continually suspected, the sectaries came at last to deserve suspicion. Clarendon, himself an alarmist, spread incessant rumours of plots and insurrections, and kept alive the memory of divisions, which ought to have been consigned to oblivion. Some of the first fruits of the restoration were, therefore, to fill the gaols with innocent state prisoners, and the court and country with spies.

During the protector's war with Spain, he had supported the Portuguese in their revolt from that power; and on the restoration, advances were made by Portugal for the renewal of the alliance, together with an offer of the princess of that kingdom in marriage, which was embraced by Charles.

Charles marries the Princess of Portugal.

The king's marriage with the daughter of Portugal, while it brought him £500,000, with two fortresses for her dowry, (Tangier in Africa, and Bombay in the East Indies,) was unpopular from the religion of the princess; and, like the sale of Dunkirk, which he made over to the French in the course of the same year for £400,000, it discovered his necessities, and the prodigal disposition which had occasioned them. Even his loyal parliament perceiving they had now to deal with a monarch, profuse, without gratitude, justice, or generosity, and what was still more unpardonable in their eyes, inclined to tolerate papists, became cautious and sparing in their supplies.

Both houses remonstrate against the Catholics, 1663.

To deprive the Catholics of all hopes, the two houses concurred in a remonstrance against them. The king gave a gracious answer, but to divert the attention of the commons to a subject more profitable to his own interests, he laid the state of his revenue before them, and again implored their assistance. They granted him four subsidies; and the clergy in convocation followed the example of the commons.

Clarendon loses the king's favour.

An important change was now preparing, which forms an unhappy era in the reign of Charles, viz. the dismission of Clarendon. Clarendon's objections to the Portuguese match, and his refusal to coincide with a plan, which an overloyal member of parliament had pledged himself to accomplish, of making the king independent of parliament by a fixed revenue of two millions a year, have been assigned as the cause of Charles's alienation from that minister. A still more obvious cause may be traced in Clarendon's zeal against popery. Charles, who was too indolent himself to attend to business, gladly allowed his brother, the Duke of York, to take an active and leading management in public affairs. James, who thus possessed the first influence at court, was a bigotted papist; and his faith was sufficient to make him the enemy of Clarendon. The chancellor was also obnoxious to the mistresses of Charles; for he had disdained to pay his court to them. An impeachment against him, conducted by the personal hatred of Lord Bristol, terminated, however, in the disgrace of the accuser, and the minister lingered a while in power after his fall had been decreed.

1664.

The first Dutch war under Charles commenced during the administration of Clarendon and Southampton; but it is easy to believe what is said of those ministers, that they were averse to it. It was, however, a war of the people's, or at least of the parliament's wishes, as much as the king's; for we find the commons, during that memorable session, in which they repeated the triennial act, breathing indignation at the Dutch, and promising aid to the king if he should go to war with them. Charles, and still more the Duke of York, who ruled him, hated the Dutch for their manners, religion, and free government. James had a turbulent activity, which required employment; and Charles not only longed to rival the naval glories of Cromwell, but to have that command of money, which the supplies for a war could afford. On the pretence of two merchant ships captured by the Dutch, for which the English owners were about to accept a compensation, and of some other causes still less important, war was commenced.

War proclaimed against the Dutch.

The Dutch were expelled, even before a declaration of war, from their territories in Africa, and New-York was seized by the English. De Ruyter recovered to his country her possessions on the coast of Guinea, but failed in his attempt on Long Island and Barbadoes.

Defeat of the Dutch fleet. 1665.

A battle between the grand fleets of the two nations, the Duke of York commanding the English, and Opdam the Dutch, was fought on the 6th of June 1665, in which the latter, who were vanquished, lost nineteen ships. This victory excited so much jealousy of the English, that France and Denmark resolved to protect the republic. The rumour of a French fleet, under Beaufort, approaching from Toulon to join De Ruyter, occasioned the Earl of Albemarle, (lately Monk) who now commanded the English, to weaken them, by detaching Prince Rupert with a fleet to watch that of the French.

Naval engagements, June 1, 2, 3, 4.

The remainder of the English set sail to give battle to the Dutch. In a combat, which lasted, with some intermissions, for four days, the English were worsted, and pursued upon the second day; and on the third were only saved by the arrival of Prince Rupert with sixteen fresh ships; on the fourth the combatants were parted by a mist.

July 25.

A second and equally bloody engagement took place soon after, in which the Dutch were vanquished; but they were soon in a condition to face their enemies, by the junction of Beaufort, the French admiral.

The Dutch fleet appears in the Thames.

The Dutch fleet appeared in the Thames, conducted by their illustrious De Ruyter. The English were thrown into the utmost consternation; a chain had been drawn along the river Medway, and some fortifications had been added to the forts along the bank. But these were unequal to the invading force: the Dutch broke the chain, and, destroying the shipping in their passage, advanced to Upnore Castle, and returned, after terrifying and insulting the coast, being only prevented, by the French failing to join them, from laying London itself in ashes. During these transactions, a plague had broken out in the metropolis, which carried off about 90,000 of the inhabitants; and a fire, which it is to be hoped, from the disuse of wooden buildings and narrow streets, will long be called the last great fire in London, consumed the greater part of the city. By a stretch of the regal power, which was entirely illegal, the city was ordered to be rebuilt on a new and more commodious plan; but when it is considered, that London, in consequence of that arbitrary order, rose, like a phœnix, more beautiful from her ashes, and that the plague, which before had been seldom, if ever, totally banished from her unwholesome and narrow alleys, was extirpated by this accident, we can scarcely lament the passing misfortune, still less blame the exertion of prerogative for a purpose so beneficent. The fire of London was, from the violence and credulity of popular prejudice, ascribed to the Papists; and Charles was obliged, by the parliament themselves countenancing this falsehood, to issue a proclamation against the priests and Jesuits, which, like all other proclamations of the kind, were meant more to pacify the fears of Protestants, than to operate against the professors of the Romish faith. The ill humour which the parliament displayed at the bad execution of this edict, was felt by Charles in diminishing his resources for the war; and a treaty for peace had been begun with the States, before the last-mentioned triumph of the Dutch arms. By the signing of the treaty of Breda, (10th July 1667.) the English were left with no other acquisition than New York, while the pretended objects of the quarrel were, in fact, ceded to the combined enemy. The public mind, however, soured by disasters, and inflamed by the late disgrace, seemed to require some important sacrifice; and as Clarendon, the prime minister, was unpopular with the country, obnoxious to parliament, and disagreeable from his very virtues to Charles, there was a combination for his ruin among all parties. When he was impeached by parliament, Charles basely gave him up: he retired into France, where he lived in a private manner till his death.

To this war with Holland, a triple alliance between the three great Protestant powers, England, Holland, and Sweden, soon succeeded; but it was founded on principles of too much utility to be sincerely cherished by Charles. By this league, which was signed by the wise and exalted Sir W. Temple on the part of England, by Van Beuninghen for Holland, and by D'Ohna for Sweden, the Netherlands were protected from France; and by the treaty of Aix la Chapelle, (which the triple alliance produced,) all Europe seemed to be promised repose under that Protestant confederacy; yet, amidst the rejoicings for the event, Sir Thomas Clifford, who possessed more of Charles's confidence than any of his ministers, betrayed, by an unguarded expression, the secret perfidy of his master. Notwithstanding all this joy, said he, we must still have another Dutch war.

In turning our attention, at this period, to the sister kingdom, we find the yoke of prelacy, which the restoration had imposed on Scotland, attended with the most atrocious oppression. Middleton, whose drunkenness and cruelties had made his administration of Scottish affairs contemptible as well as odious, was disgraced in 1663, and was succeeded by Lauderdale, who, with a dark and vindictive temper, had yet the merit of intending more lenity to his Presbyterian countrymen, than the fury of the prelates, on whom he was dependent, would permit him to exercise. A court of ecclesiastical commission traversed the kingdom, bound by no forms of law, and confined to no place nor time of meeting, but established on the strictest principles of the Spanish inquisition. The civil and military affairs were subordinate to them; their sentences were pronounced without accusation, evidence, or defence. The soldiery were let loose upon the people; all who attended, or were suspected of attending, the Presbyterian form of worship, were fined, imprisoned, or transported to the plantations. When sufferings too great for human patience, had at length driven the Scottish Presbyterians to insurrection, their defeat at Pentland afforded a pretext for judicial bloodshed, as well as fine and proscription. But the victims died with such exultation, that it was at last difficult to procure executioners. M'Cail, a young preacher whom the prelates had excruciated to extort a confession of his associates, endured the torture of the iron boot till his leg was crushed and broken, and expired in extacy on the scaffold, exclaiming, with a sublime enthusiasm, "Farewell, thou sun, and moon, and stars! farewell, world and time! farewell, weak and frail body! Welcome eternity! welcome angels and saints! welcome Saviour of the world! and welcome God, the Judge of all!"

Towards the conclusion of an unfortunate and disgraceful war, the king was compelled to mitigate every where the rigours of government; and when he had sacrificed Clarendon, the prelates lost their chief support. The violence of the Scottish archbishops had also been artfully fomented by Lauderdale, till it reached a crisis destructive to themselves. A milder administration succeeded, and the nation began to breathe again under the auspices of Tweedale, Kincardine, and Sir Robert Murray, and enjoyed for a time, if not the blessings of liberty, at least those of a humane and impartial government. After the fall of Clarendon, the most unprincipled part of Charles's reign was yet to be acted. Clarendon is accused of having connived at his receiving money from France unknown to his people; but this heavy charge is not proved against him, (adduced by Dalrymple in his *Memoirs*). That Charles had been, from the first years of his reign, guilty of this meanness, is, however, certain; and in the beginning of the year 1670, he signed an agreement with Louis XIV, by which the king of England was to receive £200,000 a year, and the king of France was to assist in establishing Popery and despotic power in England: both were to unite in the plan of destroying the Dutch republic. In the very year that Charles signed this infamous treaty, the commons, deluded by his declarations about the triple alliance, voted him between £200 000 and £300,000. No one as yet suspected the fraud that was carrying on. Lord Lucas was the first public speaker, who had the sagacity to discover, and the boldness to express in the House of Lords, while the king himself was present, the absurdity of this useless waste of the public money, and to demand why the maintenance of the triple alliance needed such supplies.

The Cabal administration.

It may naturally be asked, who were the king's ministers at this disgraceful period? After the dismission of the old royalists, the administration of the Cabal succeeded, so named from the initial letters of the five names, Clifford, Arlington, Buckingham, Ashley, (afterwards Shaftesbury,) and Lauderdale. Those men, it is probable, were all ready to betray their king as well as their country; yet it is certain that Charles betrayed them, keeping from some of them the real state of his connection with France, and of what he was pleased to call his religion.

Grounds of a new war against the Dutch.

The Cabal, however, had the guilt and disgrace of commencing the second Dutch war; although Charles concealed from them the secret of his bribe from France, for fear they should demand a share of it. The recal of Sir W. Temple from the Hague, and the appointment of Downing, who was odious to the Dutch, announced the unalterable intention of England to quarrel. The grounds of the quarrel on the side of England were, that a whole Dutch fleet had refused, upon their own coasts, to strike their sails to a small English unarmed yacht. But the public of England did not participate in this crime of their government; it was even necessary to prorogue parliament, lest the general opinion should be expressed. Such was the public feeling, that when the Dutch deputies were sent to beg peace from Charles, the people of England followed their coaches with tears, and the court was obliged to remove them to Hampton, from the eyes of the public; a device which only increased the general pity.

A variety of events gave notice to the English, that the war against Holland was but a part of Charles's scheme for the destruction of the Protestant faith and liberty. When he wanted more money, and dreaded to apply to parliament, he seized the issues of the exchequer; a measure which filled the mercantile world with bankruptcy and distress.

The Duke of York declares his conversion to Popery. 1672.

The Duke of York, already deeming himself independent of public opinion, had openly declared his conversion to popery; and Charles, for the sake of the professors of that religion, issued a declaration of indulgence of conscience, and asserting a dispensing power in the crown. No pretence of toleration could reconcile the English to this usurpation; for it was justly said, that if the king could dispense with one law, he might dispense with all; and the pretence of general toleration was known, besides, to be a false one. In the mean time, the Dutch, attacked by Louis by land, and by the navies of England and France by sea, and deserted by Sweden, seemed on the point of being sacrificed. Louis's declaration of war had at least a bold and open, although a shameless effrontery; Charles's declaration was not issued till he had attempted to pilfer their Smyrna fleet from the unfortunate republic, and after he had been disgraced and disappointed in the attempt. War was declared with Holland on the 17th of March 1672; and in May, the combined fleets of France and England were attacked by De Ruyter, when a dreadful but indecisive battle ensued, in which the loss, though nearly equal, was rather heavier on the side of the English. At night the Dutch retired, and were not followed by their opponents. On that day perished the gallant Admiral Sandwich, on board his own ship, which took fire: though warned of her state, he preferred death to surviving an unmerited reflection on his courage, which the Duke of York had basely and undeservedly thrown out. Three other engagements were fought in the course of this war, during the succeeding year 1673; two off the sands of Schonvelt, and another at the mouth of the Texel. In this last combat, the famous De Ruyter and Tromp were opposed to the English Admirals Prince Rupert and Sprague; and Sprague was drowned in the action by a shot which sunk his boat, as he was passing to hoist his flag on board a third ship, after two in which he fought had been torn to pieces. But the engagement was, like all those of the second Dutch war, bloody but indecisive.

Naval engagement with the Dutch.

The Dutch sue in vain for peace.

The Dutch had, during these events, appealed in vain to the remorseless hearts of Charles and Louis for pity and peace. The terms offered by Louis would have utterly annihilated their independence: those offered by Charles were, if possible, more insulting. After this refusal, despair and popular fury drove them to perpetrate the sacrifice of the De Wits, a tragedy which is at once the foulest blot in their history, and yet the prelude to its most glorious events. The Prince of Orange, on whom the sovereignty of his country and its forlorn hopes were fixed, replied, with just elevation of soul, to Charles and Louis, when they told him that he should live to see his country undone, "*No! I shall die in the last ditch.*"

The parliament boldly oppose the king.

1673.

The English, as well as Dutch, were indebted for the speedy assertion of their liberties, to the spirit of the English parliament during 1673. They plainly told Charles, that he had no right to the dispensing power which he had claimed in his declaration of indulgence; and when he gave an ambiguous answer, they insisted on a more explicit one. They prepared to attack his ministers. The famous test act against popery was passed, which struck the staff of lord high treasurer from the hand of Clifford, and that of lord admiral from the king's brother. Charles declined a conflict with his parliament, and revoked his dispensing claim. But when his ministers found that he intended to expose them to the vengeance of parliament, the cabal made the same turn with their master. Shaftesbury, saying aloud, that the prince who forsook himself deserved to be forsaken, put himself at the head of the opposition, and urged the repeal of these unconstitutional acts in which he had so deeply participated.

Parliament [illegible] October 1673.

The parliament, which had adjourned in the spring of 1673, met again in October. Hitherto they had resisted the king in some material points, but their opposition, and even impeachment of ministers, was not conducted with that indignation at the Dutch war, which it is certain was felt throughout the nation. In the session which commenced in October, a more decided spirit appeared. They remonstrated with anger at the proposed marriage, which was now negotiating between the Duke of York and a Princess of Modena. They voted the standing army a grievance, and declared that they would grant no more supply, unless it appeared that the Dutch were unreasonable in their terms. To cut short these disagreeable altercations, the king resolved to prorogue the parliament, and with that intention went unexpectedly to the House of Peers, from whence he sent the usher of the black rod for the commons to attend. It happened that the usher and the speaker met nearly at the door of the house, but the speaker being within, some of the members suddenly shut the door and cried to the chair; on which the following motions were tumultuously made: that the alliance with France was a grievance, that the evil counsellors of the king were a grievance, that the Earl of Lauderdale was a grievance; but as the usher knocked violently at the door, and the speaker leapt from the chair, the house rose in great confusion.

Parliament had been prorogued to give the Duke of York time to finish his marriage, but the king's necessities obliged him to call them again. By their unaltered sentiments, the king saw that he had no more hopes of supplies for so odious a war. He therefore affected to be guided by the wishes of his parliament, and by their advice concluded a peace with the Dutch. All possessions were restored to the same condition as before the war; the honour of the flag was ceded by the states, who agreed also to pay nearly L. 300,000 to the king. A body of English troops still remained in the employment of France, which Charles said he was prevented by treaty from recalling; but he secretly promised the Dutch that they should not be recruited, a promise which he was not honest enough to keep.

The interval from the separate peace between England and the United Provinces, to the peace of Nimeguen, was chiefly employed by Charles in attempts to obtain money from France; in which he was sometimes more, sometimes less successful, and in various false professions, promises, and other devices to deceive his parliament and his people, in which he uniformly failed. Though neither the nature and extent of his connection with France, nor his design of introducing Popery into England, were known at that time, as they now are, yet there were not wanting many indications of the king's disposition, and of the general tendency of his designs. Reasonable persons apprehended, that the supplies asked were intended to be used, not for maintaining the balance of Europe, but for subduing the parliament and people who should give them; and the great antipathy of the bulk of the nation to Popery, caused many to be more clear-sighted in discovering, and more resolute in resisting, the designs of the court, than they probably would have shewn themselves if civil liberty alone had been concerned.

In the interval already mentioned, the commons twice addressed the king against the marriage of the Duke of York with the Duchess of Modena, although it was already celebrated by proxy. They drew up votes and addresses against standing armies. Nor were the efforts of parliament confined to the army alone; they addressed against national vances, against the king's ministers, they examined Buckingham and Arlington at their bar, they complained repeatedly against Lauderdale, they prepared to impeach Danby, and supplies were refused almost as often as they were asked. The king, on the other hand, endeavoured to oppose the sentiments of liberty, by setting on foot a bill in the House of Lords, for imposing the oath of non-resistance on members of parliament, and on all in public stations. But after it was carried through the lords, Charles found he could not venture it in the commons.

In vain Charles hoped, by giving his brother's daughter in marriage to the Prince of Orange, to recover the popularity which he and his brother had lost. While the minds of men were agitated by the obvious designs of Charles, by abhorrence at the bigotry of the Duke, and by a general consternation for the safety of the Protestant religion, the rumour of a *Popish plot*, for the universal massacre of the Protestants, gained a ready and too facile belief. The reporters of this design were obscure persons. Kirby, a chemist; Tong, a weak credulous clergyman; and Titus Oates, likewise a clergyman, but one of the most abandoned of miscreants, deposed to an account of a plot formed among the Papists, for burning London, putting the Protestants to death, and assassinating the king and his brother. By making the king an object of the pretended assassination, the suspicion was prevented of its having been forged by the contrivance of the disaffected. The alarm spread instantly over the nation; accident after accident, arising in a manner unparalleled in history, concurred to maintain the delusion; letters were seized, which discovered the Duke of York's correspondence with France, against the religion and interests of his country; Danby's correspondence was also detected, which involved Charles in similar disgrace. Above all, the murder of Godfrey, who, in his office of magistrate, had made public the plot, made every Protestant imagine he felt the dagger at his throat.

This plot was greedily adopted as an engine against the court, by the popular party; more, it may be believed, from blind credulity, than from deliberate injustice; yet the proceedings that were founded upon it were truly disgraceful. Coleman, father Ireland, Grove, Pickering, and other innocent men, suffered death for the supposed conspiracy, on the contradictory testimony of incredible witnesses, and after trials in which the judge and juries seemed to be the abettors of perjury. For two years, the Protestant credulity and vengeance were satiated from time to time with such legal *murders*, till the execution of the venerable Lord Strafford called forth some pity and remorse in the public mind. In the midst of these furious proceedings, the parliament, which had sat for 17 years, was dissolved. The succeeding one was actuated by the same immeasurable hatred of Popery on the one hand, which throws so much discredit on their judgment and charity; and, on the other hand, by a jealousy of the king's power, and a regard to the cause of civil liberty, which, though debased by its connection with baser prejudices in religion, was ultimately conducive to the greatest public good. It is to this parliament that we are indebted for the Habeas Corpus act, the most important barrier that was ever raised against the personal oppression of the subject in a modern or ancient commonwealth. The standing army, and the king's guards, were in the same session voted to be illegal. But the inefficacy of mere laws in defence of the subject, when opposed to unprincipled administrations, had been so sensibly felt, that the commons justly deemed their work incomplete, unless the Duke of York were excluded from the succession to the crown. A bill, therefore, for the purpose of excluding him was prepared, and passed the House of Commons; but being vigorously resisted by the court, by the church, and by the Tories, it was lost in the House of Lords. The restrictions offered by the king to be put upon a Popish successor, are supposed to have been among the most powerful of those means to which he was indebted for success in opposing the bill. During these agitations, the Duke of York, at the king's desire, had retired to Brussels; but an indisposition of the king's brought him back to England, to be ready in case of any similar accident, to assert his right to the throne. After prevailing upon Charles to disgrace his natural son, the Duke of Monmouth, who had become exceedingly popular, James retired to Scotland, under pretence of quieting the apprehensions of the English nation, but in reality to strengthen his interests in that part of the kingdom. This secession served still more to inflame the country party, who were strongly attached to Monmouth, and were resolved to support him against the Duke of York.

Habeas Corpus act passed.

Proceedings in Scotland.

The milder administration in Scotland, which had taken place under Tweedale and Murray, was of short continuance. Lauderdale, at first the friend and associate in government of those Scottish patriots, and a favourer of the Presbyterians, abandoned the interests of his country and humanity, and his administration relapsed into the same tyranny from which he had relieved it. The object of the court in sanctioning his oppressions, was to make Scotland, in its state of servitude, an instrument to accomplish the servitude of England; and it was an article in Charles's second treaty with the French monarch, to which Lauderdale was privy, that the Scotch army was to be brought to co-operate with the French troops for the establishment of Charles's absolute power. In proportion as the severities of government increased, the field and armed conventicles of the Scottish Presbyterians grew more numerous. Yet it was not until these severities had been carried to the last extreme, it was not until the letters of intercommuning[*] had been issued, that law-burrows[†] had been taken out by the king against his whole subjects; and that

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[*] Letters of intercommuning, were writs of outlawry against those who failed to appear at the council, and confess their guilt in attending conventicles. At a moderate computation, 17,000 persons of either sex were objects of persecution on this charge.

[†] An individual, by an application on oath, may obtain, by the Scotch law, a law-burrows, corresponding nearly to swearing the peace against any one,—a process, which had hitherto been only applicable to individuals; a government swearing the peace against its subjects, was a new spectacle. By these writs, the persons were bound, under penalty of being outlawed, to do what it was not in their power, to prevent conventicles.

6000 lawless Highlanders had been let loose upon the low countries, which they filled with robberies, tortures, and outrage, in every shape. It was not, in fact, until an insurrection had been purposely excited by the government, that the persecuted conventicles had recourse to arms.

Archbishop Sharpe assassinated.

Insurrection in Scotland.

The conduct of Lauderdale, who was the chief actor in these scenes of violence, was completely approved and justified at court; but in consequence, probably, of the state of politics in England, at the time when the Whigs were strongest in the House of Commons, some of the grievances were in part redressed, and the Highlanders and law-burrows were recalled; but the persecution of conventicles continued, and indemnity was granted for every species of violence in suppressing them. After the assassination of Archbishop Sharpe by a troop of fanatics, who had been driven to madness by his oppressions, an act committed by a few individuals was imputed to the whole fanatic sect, (so the majority of the nation was called by government,) and those who attended field or armed conventicles were ordered to be indiscriminately massacred. A rising was at last produced in the west of Scotland, where the insurgents, though undisciplined peasants, defeated the infamous Graham of Claverhouse, afterwards Viscount Dundee, and took possession of Glasgow. The Duke of Monmouth was sent with an army from England to subdue them; but, lest the generous mildness of his nature should prevail, he had sealed orders, which he was not to open till in sight of the rebels, but to fall upon them without previous negotiation. In pursuance of these orders, Monmouth attacked them at Bothwell Bridge, where the Scottish peasants, headed only by their clergy, were soon defeated. Four hundred were killed in the field, and a body of 1200, who surrendered at discretion, were preserved from massacre by the humanity of Monmouth.

The Duke of York leaves the kingdom.

Parliament dissolved.

During these troubles, the king had made a vain attempt to obtain a little popularity, by removing a prince who was odious to so large a part of the community, and by sending his brother James out of the kingdom. In vain, also, had he attempted to break the opposite party, by making their leaders, Sunderland, Halifax, and Essex, his ministers, and by framing a new council, into which a still greater number of the popular party was brought, and at the head of which Shaftesbury himself was placed. Charles made those men his counsellors, but he concealed from them his intentions, and his secret transactions with France, and gave his confidence to an opposite party. The Duke of York, though abroad, still exercised an influence which became paramount after an illness with which the king was seized; on which occasion James returned, and persuaded his brother to send Monmouth into the same banishment from which he had himself returned. As the parliament of 1679 was as strongly in the popular interests as their predecessors, Charles determined to dissolve it, and to call another in 1680.

After this, Charles, during eighteen months, avoided calling a new parliament, and employed the intermediate space in securing a great part of the nation in defence of his brother and himself; in dismissing from the ministry his popular ministers, Essex, Halifax, and Shaftesbury; and in increasing his army, by his brother's advice. The opponents of the court were, in the mean time, neither idle nor timid. Monmouth returned from exile without leave, and was received with joy and triumph by the people. Shaftesbury, the popular leader, at the head of a band of nobility, formed a project to impeach the Duke of York as a Popish recusant. Addresses from bodies of the nobility, from counties, and from boroughs, against Popery, and petitions for a new parliament, came to the king from all quarters. These the court counteracted by procuring addresses from a party, which expressed their *abhorrence* of the petitioning Whigs; and the nation was divided into two violent parties of petitioners and abhorrers. The commons of that parliament, which Charles thought proper to assemble in 1680, after these agitations, was as unruly as the former. Pressing, like their predecessors, for the favourite exclusion bill, they determined against granting all supplies to the king until it should be carried. Charles determined, therefore, to dissolve them, and sent his usher of the black rod for that purpose to the house, whilst they were blending an absurd resolution respecting the burning of London by the Papists, with another highly to their honour, for emancipating their fellow Protestants, the dissenters, from the intolerant laws still subsisting against them.

It was doubtful if Charles would ever call another parliament; but the support which he had received from the church party, determined him to try a new election, in spite of the popular majorities which had hitherto prevailed in the commons. He summoned the new parliament to meet at Oxford, a place remarkable for its loyalty; intending, by this preference, to shew his displeasure at London. But this innovation raised new objects of passion; for the king's aversion to his capital was construed into aversion at his people. In this fourth parliament of the present reign, the country party still prevailed. It consisted almost entirely of the same members, who chose the same speaker, and who instantly fell into the same measures,—the impeachment of Danby, the repeal of the laws against dissenters, the inquiry into the Popish plot, and the bill of exclusion. A dispute with this parliament respecting Fitzharris, an Irish Papist, who pretended to confess the secret of another popish plot, more tremendous than the last, gave the king a pretence for dissolving them. The king imprisoned Fitzharris; the commons avowed his cause, and wished to impeach him themselves, in order to protect him. This, however, was but the pretence for the dissolution. Charles had secured to himself a good pension from France, and was determined to have no more parliaments. This was, indeed, a condition on which he was base enough to receive his stipend from Louis. The measure of dissolution was exceedingly successful. The most flattering addresses poured in from all parts of the kingdom; the cries of divine right, and indiscriminate obedience, for a time overwhelmed the voice of liberty; and men seemed to vie with each other, to have the greatest share in the glorious work of slavery,—by securing to the king for the present, and to the duke after him, absolute, unlimited obedience.

The whole history of the rest of Charles's reign, exhibits an uninterrupted series of attacks on the lives, liberties, and properties of his subjects. The character of the government appeared first, and with the most hideous features, in Scotland. Thither the Duke of York had been permitted to go, after a temporary exile from Britain; and here he exerted, during his administration of that kingdom, a tyranny, if possible, more frightful than that of Lauderdale. The wretched remains of the fugitive Covenanters, now known by the name of Cameronians, from the name of one of their clerical leaders, having publicly abjured allegiance to government, their executions were conducted, wherever they were found, with every circumstance of torture and cruelty. The innocent were artfully involved in the sacrifice. Availing itself of the frantic and fanatical delusion which the cruelties of government had created, the privy council intermixed its tortures with the most ensnaring questions:—Was Sharpe's death murder? Was the rising at Bothwell's bridge rebellion? Is Charles a rightful king, or a tyrant? The victims of rage and suspicion, too sincere, or by torture made unable to prevaricate, were dismissed from their tormentors to the justiciary court, and from thence to the scaffold. James himself assisted, it is certain, at one of those tortures, from choice, when Spreul was exposed to the question, and endured it twice almost without intermission.

The most illustrious object of this tyranny, in Scotland, was the Earl of Argyle, (son to the nobleman already executed in Charles's reign), a man whose only fault seems to have been submission to the oppressive system under which his country had hitherto groaned, although that very submission sprung from a love of peace, rather than an approbation of its enormities. When a contradictory test of loyalty was prescribed by the Scottish parliament, Argyle accepted the test as a privy counsellor, with an explanation, that he took it as far as it was consistent with itself and the Protestant faith. For this explanation, he was brought to trial, and, by the most infamous perversion of the most innocent words, a charge of treason was made out against him. Nairn, a superannuated judge, who was brought at midnight to make a majority on the relevancy of the indictment, fell asleep while the proceedings were read, and was wakened to give his vote. A jury of Argyle's personal enemies brought him in guilty. Argyle escaped from prison, but sentence of attainder was passed against him. After the fall of the exclusionists, and the dismission of parliament, the Duke was recalled to England, but Scotland enjoyed no relief from the change of administration.

The Tories endeavoured to signalize their victory by similar judicial enormities in England. Shaftesbury was brought to trial for high treason, and the king himself condescended to solicit and to suborn witnesses against him. As far as swearing would go, the treason was made out by infamous witnesses. A London grand jury, however, acquitted Shaftesbury, and a shout of joy was given by the spectators in court when the verdict was announced. Colledge, an obscure sharer in the pretended conspiracy, was tried at Oxford, where opposite principles prevailed. His notes of defence were taken from him on the way to trial, and he was condemned and executed by a jury predetermined on his murder. The populace, too, shouted at this verdict, for joy that a Whig was to be put to death, as those of London had rejoiced at Shaftesbury's acquittal. To give an account, as Mr Fox has observed, of all the oppression of this period, would be to enumerate every arrest, every trial, every sentence, that took place between the crown and the subjects. Pilkington, Colt, and Oates, were fined each L.100,000 for speaking disrespectfully of the Duke of York. Sir Patience Ward, formerly mayor, who gave evidence for Pilkington, was sued for perjury, and condemned to the pillory; a sentence intended to deter all witnesses from appearing in favour of those who were prosecuted by the court.

Oppressions in England.

That the subjugation of the people might be complete, measures of a more general nature were adopted. By the law of England, the validity of charters of corporations might be inquired into by a writ of *Quo Warranto*. The profligate judge Jefferys suggested to the king, that most of them might be annulled by such an inquiry. First the charter of London, and then those of almost all the other corporations in England, were either forfeited, or extorted from their proprietors. By this direct outrage on the rights of subjects, a way was opened to have the choice of magistrates, of juries, and of members of parliament, subjected to the will of the crown. It is needless to mention on what frivolous grounds these actions were maintained and sanctioned by the corrupt judgments of the king's bench. The most trifling deviations from the terms of ancient charters,—the most insignificant offences against obsolete laws,—were made the pretences for forfeiting charters. The charter of St Ives was attacked, because the borough had four constables instead of three, and three serjeants-at mace instead of two. One of the complaints against Oxford was, that the fair was held in one place instead of another.

Proceedings respecting the setting aside of charters.

1683.

While the Duke of York in Scotland, and the King in England, were proceeding to the last aggression on the constitution, a band of friends had associated to consult what means were left, or what others might be devised, for delivering their country from the dreadful servitude into which it had fallen. The leaders of this secret association were Monmouth, Shaftesbury, Russel, Essex, Algernon, Sidney, and Hambden, the grandson of the great patriot. As the evidence against this party was given by the basest of its partizans, when, from hopes of pardon they were led to mix falsehood with truth, the designs of the association must still be considered as doubtful. That they meant to levy war against the king, may be suspected, but is by no means certain.* That which is certain in this affair, is, that they had committed no overt act of treason, and

Association of patriots.

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* Fox's Introductory Chapter to the Reign of James II. p 46.

Ryehouse plot.

Execution of Russel, Sidney, &c.

that the condemnation of Russel and Sidney, who suffered for it, was a flagrant violation of law and justice. An inferior conspiracy was in the mean time held among the agents of Shaftesbury, in the city, who carried on projects unknown to Monmouth and the other six. They met at the house of Rumbold, an old republican officer, now a maltster, who possessed a farm called Ryehouse, and their conspiracy was from thence denominated the Ryehouse Plot. They had laid a plan, we are told, for assassinating the king; yet no concerted design, as Mr Hume acknowledges, had been laid, and the whole was little more than loose discourse, the overflowings of their zeal and rancour. Before the conspiracy had been detected, Shaftesbury fled to Holland, and died. Keiling, one of the associates of the city, revealed the inferior plot, and others, who were arrested, confessed their associates; and some of the obscure partizans were executed, whose confession in death, it was hoped, would prepare the public mind for witnessing the executions of Russel and Sidney. The particulars of the fate and trial of those illustrious men, will be seen under the respective articles of their names in this work. Monmouth fled to the continent; Lord Grey was arrested, but escaped from the messenger; Howard, who was found concealed in a chimney,—a lurking place suited to the baseness of a wretch who turned evidence against Sidney and Hambden, suffered only by a large fine; and Essex, one of the greatest and most virtuous men of the age, fell by a voluntary death. Armstrong, one of the chief associates, was refused the common benefit of law to be heard by counsel; "You shall have the full benefit of law," said the Judge Jeffreys; "by the grace of God, you shall be executed upon Friday next."

Baillie of Jerviswood, a Scottish patriot connected with those in England, was sent to Scotland, where, contrary to the laws, written depositions, extorted by torture out of court, were read to the jury. He suffered with several of his countrymen; but most of the Scottish associates fled to Holland, and returned at the Revolution. Spence, the Earl of Argyle's secretary, suffered the torture twice, and Carstairs for a complete hour, but neither would confess, till it was agreed that they should not be made evidences. Mr Gordon of Earlstone was brought before the council to be tortured, after he had been sentenced to death by the king's orders, but when the infernal engines were shewn to him, horror drove him instantly into madness.

Death of Charles, 2d Feb. 1685.

The government of Charles was now as absolute as that of any tyrant in Europe; but as if to please his subjects by an act of popularity, he thought proper to marry the Lady Anne, his niece, to Prince George, brother to the King of Denmark. This was the last remarkable transaction of his reign. On the 2d of February 1685, he was seized with a fit of the apoplexy; and though he recovered his senses so far as to give a death-bed exhortation to his brother the Duke of York, and to give a false declaration of his satisfaction in the Church of England, he expired in the end of four days illness, after a reign of 25 years, and a life of 55.

On the 6th of February, (the day of Charles's death), his successor, James II., was proclaimed in London. It was expected, from his known principles, that he would make his brother's reign the model of his own. He declared to that effect in his first speech to the privy council, and his continuing Charles's ministers in his confidence, confirmed the declaration. Hyde, Earl of Rochester, was appointed lord treasurer; Halifax, notwithstanding some suspicions of his having been busy in recommending a change of system to Charles, was continued in high employment; and so was Sunderland, although he had been at one time a favourer of the exclusion bill. Whatever personal objections there might be to some of these ministers, James supposed that, with the same servants whom his brother had employed in a reign which had almost eradicated the sentiments of liberty from the minds of Englishmen, he could hardly fail in the great object of his views *to be arbitrary*. For establishing this favourite project, an intimate connection with the court of Versailles being the principal engine, James early applied to Barillon, the French ambassador, with an indirect and timid hint at his necessity for pecuniary assistance. Five hundred thousand livres were speedily remitted, and James, if the French ambassador is to be believed, received the gift with tears in his eyes. It had been for some time Louis's favourite object to annex to his dominions what remained of the Spanish Netherlands, as well for their own value, as to second his views upon Holland; and this object Charles had bound himself by treaty with Spain to oppose. The first fruits which France reaped from the bribe, was to obtain from James a dereliction of the Spanish treaty. The principal agents in this business, besides the king himself, and Lord Churchill, who acted a subordinate part, were Sunderland, Rochester, and Godolphin. It is with difficulty the reader can persuade himself, that these were the Churchill and Godolphin who, the one in the senate, the other in the field, redeemed this subserviency to baseness, by their glorious efforts in the war of the succession.

The king having first informed the French ambassador, and apologized for a measure apparently at variance with his engagement to France, to support an arbitrary government, issued proclamations for meeting a parliament. He, at the same time, issued orders for levying, upon his sole authority, the customs and other duties which had constituted part of the late king's revenue, but to which, the acts granting them having expired with the prince, James was not legally entitled. So servile was the spirit of the nation, that addresses poured in from all quarters, expressing the highest approbation of this direct and daring outrage on the constitution.

Previous to meeting his English parliament, James directed a Scottish parliament to assemble at Edinburgh, where the spirit of loyalty, as the base and slavish spirit was then called, was not confined to words: Acts were passed to ratify all the late iniquitous judgments; to indemnify the privy council, judges, and all officers of the crown; to authorise the privy council in imposing the test (under whatever penalties they chose;) to punish with death the hearers and preachers of house, as well as field conventicles, and even those who refused to be witnesses against them. The executive government of the same country, scorned to be outdone in cruelty by the legislative. A refusal to abjure the declaration, in the terms prescribed, was cause for immediate execution. In one part of the country, information having been received that a corpse had been buried, an enquiry took place—it was dug up, and found to be that of a person proscribed. Those who had interred him, were suspected, not of having murdered, but of having harboured him. For this crime, their house was destroyed; the women and children were driven out to wander as vagabonds; and a young man belonging to it was executed. In another county, three females, one of sixty-three years of age, one of eighteen, and one of twelve, were charged with rebellion, and refusing to abjure the declaration, were sentenced to be drowned. The last was let off, upon condition of her father's signing a bond for a hundred pounds. The elderly woman bore her fate with the greatest constancy. The girl of eighteen was more pitied, and, after many intreaties, and having been once under water, was prevailed upon to utter some words, which might be fairly construed into blessing the king, it was thought she was safe; but the merciless barbarian, who superintended this business, was not satisfied, and upon her refusing the abjuration, she was again plunged into the water, where she was suffocated. It is to be remarked, that being at Bothwell bridge, and Airmoss, were among the crimes stated in the indictment of all three, though, when the last of these affairs happened, one of the girls was only thirteen, and the other not eight years of age.

The king met his English parliament on the 19th of May, and their proceedings were marked by a servility almost equal to that of Scotland. Without adverting to an unqualified menace, which the king held out to them in his speech, of making the frequency of their meetings dependent on their behaviour, *i. e.* their supplies to him; and, without noticing the illegality of the king's levying the revenue, that revenue was granted. The king's assurance was recognised as a sufficient security for the national religion, and the liberty of the press was destroyed by the revival of the statute of the 13th and 14th of Charles. In a bill which was passed for the preservation of the king's person, it was made treason to assert the legitimacy of Monmouth's birth, or to propose, in parliament, any alteration in the succession of the crown.

In his first address to this parliament, James had been obliged to announce to them the intelligence of Argyle's having landed in Scotland, and there erected the standard of insurrection. The unjust sentence of this nobleman, (whose real offence was his having insisted, on the occasion of the test, that the royal *family* should not be exempted from taking it,) and his escape from prison having been already related, the Duke of Monmouth, whose share in the cabal, to which Sidney and Russel were martyrs, has been also mentioned, had been naturally drawn, during his exile in Holland, to a connection of designs with Argyle, and the other banished patriots both of Scotland and England. The chief of these exiles were Fletcher of Salton, Hume of Polwarth, and Sir John Cochrane, Scotsmen; Lord Grey of Wark, and Rumbold, a maltster, from whose house the Rye-house plot took its name, were the most distinguished Englishmen in the enterprise. When these men had consulted on the project of redressing the sufferings of their native country and themselves, Argyle's counsel, backed by Lord Grey and Monmouth's other advisers, and opposed by none but Fletcher, was to invade the two kingdoms at one time.

and determines to invade England.

It was so determined, and Argyle had a loan of £10,000 from a rich widow in Amsterdam, and Monmouth had raised some money by his jewels. Argyle and his Scottish friends, together with Rumbold the maltster, sailed from Vly in three small vessels, and, taking a circuit round the Orkneys, were discovered long before they made a landing, which was at last effected on Argyleshire. Here Argyle was joined by some of his clan; and his numbers at one period amounted to 2000. But being overrated in all his plans by his own officers, and unable to establish himself in Argyleshire, he passed the Leven a little above Dumbarton, and proceeded eastward towards Glasgow, rather yielding to the despair of others than led by his own hopes. When his forces reached Kilpatrick, after narrowly escaping from a formidable body of the king's forces, his numbers had fallen off to 500, and he was at last left deserted and almost alone, by the resolution of Sir Patrick Hume and Cochrane, to cross the Clyde, with such as would follow them, and proceed into Renfrewshire.

He is seized and executed.

Unable to conceal himself, or to effect his retreat to his own country, where he still cherished hopes of making a stand, he was at last seized in the habit of a countryman, conveyed to Edinburgh, and consigned to execution. Monmouth set sail from Holland shortly after Argyle, and landed at Lyme in Dorsetshire, on the 11th of June.

Monmouth lands in England, and proclaims himself king.

Here he published a manifesto, proclaiming James a tyrant and usurper, and promising to the people the renovation of short parliaments, the restoration of charters, a militia to be governed by the parliament, and a general toleration to Protestant dissenters. From scarcely an hundred, his followers soon rose to the number of 6000, and he now did not hesitate to proclaim himself king. At Taunton, the people strewed his way with flowers, followed him with acclamations and prayers, adorned their walls with green boughs, and threw open their houses to his army. But these were delusive promises of success. He was joined by none of the superior gentry. His slow approach struck no terror, but gave time for his enemies to prepare; and he unfortunately lost Fletcher of Salton, the only man of commanding genius in his army, in consequence of that gentleman having rashly killed a citizen in a dispute. James, in the mean time, got his army increased to 15,000 men, and obtained from parliament a grant of £400,000. After some unimportant skirmishes with the king's troops, and a variety of movements, which marked his indecision and perplexity, Monmouth at last determined to risk his fortunes in a pitched battle with the forces of the king's generals, Feversham and Churchill, who were posted to receive him at Sedgemore, in the neighbourhood of Bridgewater. Here

Monmouth is defeated in the battle of Sedgemore.

He is seized and executed.

his undisciplined troops drove the royal infantry from the ground, and seemed on the point of complete victory, when the cowardice of Grey, who commanded the horse, brought all to ruin. That worthless nobleman fled at the first onset; and the rebels being charged in flank, were slaughtered, during an unavailing resistance, for three hours, during which they lost about 1300 men. Monmouth fled above twenty miles from the field of battle, till his horse sunk under him. He then alighted, and, exchanging clothes with a shepherd, fled on foot with a single attendant, till, exhausted with hunger and fatigue, they both lay down in a field, and covered themselves with fern. The country was searched with bloodhounds, and James at last had the satisfaction of hearing that his nephew was found in a ditch, half concealed by weeds, with some raw peas in his pocket, a sustenance on which he had fed for two days. He burst into tears when seized by his enemies. For some time, the unfortunate Duke sought his life with importunity; but, when James received his entreaties with all the sternness of his implacable character, he recovered himself with dignity, and behaved, in his last moments, with magnanimity, though persecuted on the scaffold by his religious assistants. The executioner struck the blow so feebly, that he only slightly wounded him; and Monmouth raised his head from the block, and looked him in the face, as if to upbraid him, but said nothing. After two other ineffectual blows, the executioner threw down the axe in horror, and declared he could not finish the deed. The sheriffs threatened him; he was forced to proceed; and, at two more strokes, severed the head from the body. He perished in his 36th year.

Cruel treatment of the prisoners taken at Sedgemore.

The most vindictive inhumanities were practised by government on the unfortunate prisoners taken at Sedgemore. Immediately after the battle, Feversham hanged above twenty, and was proceeding in his executions, when the Bishop of Bath and Wells informed him that those unhappy men were now by law entitled to a trial, and that their execution was absolute murder. Kirke, who hung up his victims with the same avidity, when he saw the feet of the dying shake, used to say they should have music to their dancing, and ordered his trumpets to sound, and his drums to strike up. Jeffreys, (now ennobled), was the judge who tried the prisoners in the western circuit. This atrocious man was not satisfied with the sacrifice of the principals, but charged the juries also to search out the aiders and abettors of the rebellion; and those who, in compassion to the wretched fugitives, had let them be hid in their houses, were denounced as such. It is horrible to relate, that two women, Lady Lisle and Mrs Gaunt, were sentenced to be burnt alive, literally, for such acts of compassion. James complained of the unpopularity which Kirke and Jeffreys had drawn upon his name; but he complained in the days of his misfortunes, and such cruelties seem to have been but too congenial to the nature of him, who could jocularly style the bloody career of his judge, "Jeffreys' campaign."

At the next session of parliament, in November, James assumed a still higher tone of language than he had hitherto used. He spoke openly of the necessity for a larger standing army, and for enabling popish officers to serve without taking the test. Lost as the public mind seemed to be to every feeling for civil liberty, the fears for religion, roused by this indication of the king's intentions, with respect to the Catholics, created some symptoms of independence in a parliament, the most submissive which had sat for 100 years. The commons ventured to address the king, on the necessity of quieting the fears of the people on the subject of religion, and to leave the extent of the supply unsettled till they should be satisfied as to the tests. The lords were preparing to imitate their example; and a motion proposed by Compton, bishop of London, actually prevailed, that a day should be fixed for taking the king's speech into consideration; a motion, by which it was understood, that the king's exercise of the dispensing power should be examined by the peers. But James, alarmed at the first though slight symptoms of resistance, prorogued the parliament, after it had sat but 11 days, and never assembled it again. He soon after dismissed many of his servants and officers, who had voted against his measures. After the prorogation of parliament, he established and regulated a perpetual camp at Hounslow Heath, under pretence of discipline and national defence, but, in reality, with a view to overawe the metropolis.

After the suppression of Monmouth's rebellion and the dismission of parliament, James seems to have been so elated with his success, in establishing arbitrary power, that he proceeded without fear or caution in the second great object of his views, the establishment of the Catholic religion. His exercise of the power of dispensing with the test, that security which all Protestants believed to be the chief barrier against the introduction of popery, was systematically employed to throw every place of honour and emolument under government into the hands of Catholics; and besides offering the lure of offices, the king was active and zealous in making converts. Sunderland, ever versatile and unprincipled, continued in favour by becoming a convert to the king's religion; but Rochester and Clarendon, James's own brothers-in-law, though sufficiently subservient to his arbitrary views in civil government, were dismissed from office for their obstinacy in religion. Four Catholic Lords, Powis, Arundel, Dover, and Bellasis, were admitted into the privy council, and these, with father Petre, the queen's confessor, and James himself, formed a Catholic cabal of seven, who had the whole administration of government.

In Ireland the mask was more completely thrown off, where Talbot, earl of Tyrconnel, in his fury for the Catholic cause, broke the Protestant officers, disbanded the soldiers, and disarmed all the natives of that faith, let loose a Popish banditti to prey upon the inhabitants, and exposed the kingdom to all the terrors of another massacre. The church was now alarmed; and that spirit of resistance which lay dormant, while the most sacred civil rights of the subject were suffering violation,[*] was awakened by the common fear of Popery, which drove the Tories and High Churchmen to coalesce, in their common danger, with the Whigs. The common resentment grew still stronger, when James, in violation of established law, issued a new commission, by which seven commissioners were invested with unlimited authority over the whole church of England. By this commission, a sentence of suspension was passed against Sharpe, a clergyman, for declaiming against Popery, and against the Bishop of London for having refused to suspend him,—a sentence which exasperated every true Protestant in the kingdom. Not contented with his suspending power in particular instances, the king issued a proclamation for a general suspension of all penal laws against non-conformity; an act of liberality, abstractly considered, but disgraced by the views of the tyrant who passed it. This was followed by a still more incautious display of his zeal in sending the Earl of Castlemaine as his envoy to the Pope, for the purpose of restoring the church of England to the bosom of the ancient communion, by a solemn reception of the Pope's nuncio at Windsor, and of the regular Popish clergy in the habits of their order at court, and by forcing the universities to receive some of his most worthless proselytes to Popery into their benefices.

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[*] The elections in several places were transferred from the people to the magistrates.

His dispute with the church was brought to a crisis, by his enjoining a second declaration of indulgence, which he ordered to be read by the clergy in all the churches. The clergy, who were known to disapprove of the king's illegal assumption of the dispensing power, almost universally refused obedience to this edict; and six prelates, Lloyd, bishop of St Asaph, Ken of Bath and Wells, Turner of Ely, Lake of Chichester, White of Peterborough, and Trelawney of Bristol, concerted with the primate Sancroft, a petition against the order, to the king. Though the petition (unexceptionable in itself) was privately delivered, they were summoned to appear before the council; and on refusing to find bail, were committed for sedition to the Tower. Never was the mind of the people so affected, as when they beheld those fathers of the church conveyed to their imprisonment. They were taken by water, to prevent the emotion which the sight of them might create in the city; but the people shouted when they perceived them at a distance; they threw themselves with reverence on the ground as they passed; and the very soldiers who were their guard, knelt and implored the blessing of their prisoners. Their trial for sedition, in framing the petition, came on in the King's Bench. They were attended thither by a train of nobles and respectable commoners. The first counsel at the bar pleading for them, shewed that they felt the day and the cause to be the greatest for their country and themselves in which they should ever be destined to display their abilities—and the audience within and without—all London—all the nation—expected the decision with an awful and deep anxiety. The jury were enclosed all night, and in the morning gave a verdict for the prisoners. It was received with a shout of joy in the court; and almost in an instant, a thousand shouts were returned from all parts in London. These were continued from village to village, till they reached the army encamped on Hounslow Heath, which was seized with the sympathetic transport. The king was in Lord Feversham's tent, and hearing the camp in an uproar, sent Feversham to enquire into the cause. He returned and said, it was nothing but the joy of the soldiers for the discharge of the bishops. "And do you call that nothing!" said the king. "*But so much the worse for them.*" A few days before the acquittal of the bishops, the queen was delivered of a son,—an event of joy to the king and Papists, and of present mortification to the people, who looked for eventual release from tyranny by the succession of the Prince of Orange, but which, by rendering them more impatient of the yoke, accelerated that deliverance which they sought at their own hands.

Conduct and views of the Prince of Orange.

The Prince of Orange, James's nephew, had not been an impassive spectator of these events in England; but with his characteristic prudence, he forbore to intermeddle in the affairs of England, until the king's own misconduct, and the application of the English themselves, justified his interference. The king, conscious of the respect which attended William's name in England, solicited him to declare in favour of his dispensing with the penal acts; and threw out hopes to the prince, of his being seconded by the English arms in the league which he was forming against France. But William, justly distrusting his sincerity, and aware of the decided sentiments of the English on the subject of the tests, wisely refused to concur in his uncle's unpopular measures; and James's hints at a coalition with Holland, were speedily changed into warlike preparations, which menaced the republic. The prince was now assiduous in cherishing that spirit among the English, which led them to look for himself as their only and certain deliverer. Lord Dumblane, son of the Earl of Danby, being commander of a frigate, made several voyages to Holland, and carried out tenders of duty, and even sums of money from many of the chief nobility; and Zuylestein, the Dutch envoy, brought him over the positive invitation, not only of the chief Whig leaders, but of the Tories also, to come and assist them with his arms for the recovery of their laws and liberties. The bishop of London, the Earls of Danby, Nottingham, Devonshire, Dorset, the Duke of Norfolk, the Earl of Shrewsbury, these were some of the conspicuous persons who consented to bury their party feelings in his cause, and to devote their fortunes to his success. Even Sunderland, the king's favourite minister, privately promoted the cause at the expence of his personal honour. When William's preparations by land and sea, which had been dextrously made for pretended objects, so as to cover his designs on England, could no longer be concealed, James was warned by the king of France of the impending invasion, and an offer of troops was made to him by the French monarch to assist in repelling it. But James would not accept the offer: he trusted to filling the army with Irish Catholics, a measure which the resistance of the colonel and officers* of the first regiment on which he tried the experiment, and the mutinous aspect of

He is privately invited to assist in the deliverance of England.

His preparations to invade England.

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* Colonel Beaumont and six officers of the Duke of Berwick's regiment.

senseless rabble. The Prince of Orange then convened a council at Sion House, to deliberate what measures should be taken. It was resolved to send orders to James to remove from Whitehall to Ham; but as the terrified monarch preferred Rochester from its vicinity to the sea, and as William saw that he meditated an escape, he granted him his choice of residence. In the mean time, the Dutch troops entered London, and, as some resistance was apprehended from the obstinacy of Lord Craven, who commanded the guards, they marched through the Park at eleven o'clock at night, with drums beating, matches lighted, and in order of battle. James proceeded to Rochester with only five attendants of distinction;[*] and the Prince of Orange arrived at St James's the evening of the same day. He received the congratulations of the clergy, the dissenters, the city of London, and the lawyers, and all ranks hastened to pay their respects to him.

The only authoritative body that yet subsisted since the dissolution of James's government, consisted of the peers and bishops, who, to the number of ninety, advised the Prince to summon a convention. But William, who was determined to obtain a more express declaration of the public consent, invited an assembly of all the members who had sat in any House of Commons of Charles II., (the only parliaments whose election was regarded as free,) and to them were added the mayor and aldermen of London, and fifty of the common council. By the advice of this body, in addition to that of the lords, the Prince summoned a convention. The conduct of the Prince, with regard to Scotland, was founded on the same prudent and moderate maxims. He called together the most eminent Scotsmen in London, about 80 noblemen and gentlemen; and he accepted a voluntary offer of the administration from that assembly, as from the fairest representation of their country, that could be found in the present place and circumstances. The English convention was assembled on the 22d of January 1689, which, from the influence of the present crisis, was composed chiefly of Whigs. In the peers, however, the Tory party was yet strong, and, after protracted debates, a conference of the houses was necessary, before the vote of the commons could be adopted, that James had abdicated the throne, and that it was thereby vacant. While the Tories were endeavouring to avert this decision, and proposals of a regency were strongly urged, the Prince, who had entered into no intrigues, who had retained a magnanimous silence, and had disdained to bestow caresses on even the leaders of the party which favoured his accession, at length called together some of the chief members of parliament, and gave his sentiments on the state of affairs. He pretended not, he said, to interpose in the decision of parliament, to whom the free settlement of the nation belonged, but he had heard that a regency was proposed by some, and that others were desirous of the crown being settled on the Princess. If either of these schemes should be adopted, he declared, that he could not accept of so precarious a dignity, and must return to his native country, satisfied with the efforts he had made for England. This declaration produced its desired effect; the voice of the Whigs prevailed; and the convention passed a bill, in which they settled the crown on the Prince and Princess of Orange, the sole administration to remain in the Prince: the Princess of Denmark to succeed after the death of the Prince and Princess of Orange; the posterity of the Princess Anne after those of the Princess Mary, but before those of the Prince by any other wife. The convention annexed to this settlement of the crown a declaration of rights, by which the powers of royal prerogative were circumscribed, and defined more narrowly and precisely than at any other period of the English government.

The crown settled on William and Mary.

The revolution in Scotland.

The revolution was not in Scotland, as in England, effected by a coalition of Whig and Tory. Balcarras and Dundee, the leaders of the Tories, withdrew in rage and terror from Edinburgh; and the Scottish convention having voted, by a bold and decisive resolution, that James had forfeited the crown, tendered it to the Prince and Princess of Orange. Of the kings who have deserved popularity, none perhaps ever possessed less than William, in proportion to his merit. He had been led, by policy as well as gratitude, to entrust the administration to Whigs. Halifax got the privy seal, Danby was made president of the council, Shrewsbury a secretary of state. Nottingham was the only Tory admitted into power; and even of that one admission, the Whigs complained. It was not possible to reward all the Whigs; and a few honours and trusts conferred upon the Dutch friends of the king, roused the accustomed fury of the English against foreign favourites. The pecuniary supplies of William's first parliament were rigid, and below the acknowledged exigencies of government; nor would they countenance, but, on the contrary, fiercely opposed the noblest object of William's ambition, his wish to relieve his dissenting subjects from the sacramental test. All that he could obtain, was a partial toleration. The levity even of those statesmen, who had acted the highest parts in the late glorious revolution, and who had profited most by the change, was still more strange than the conduct of those who were chagrined by disappointment; if we can believe, that Halifax and Danby caballed with the king's enemies, and declared the impossibility of keeping James from the throne, if he would concede certain points to the Protestants. The parliament, however, though divided in every other point, were unanimous in promising to support the king in a war against France. The measures of France, William declared, left now no choice but that of war on the part of England; and the empire, Spain, Holland, and the Elector of Brandenburgh, were now united in curbing the ambition of Louis.

1689.

Coalition against France.

The parliament of Scotland soon displayed a more decided spirit of resistance to William than even the

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[*] Lord Arran, son to the Duke of Hamilton, Lords Aylesbury, Litchfield, Dumbarton, and Col. Hamilton. On the 23d of December, in the night, attended by the Duke of Berwick, and two other persons, he went to a small vessel which was prepared for him, and which carried him to Ambleteuse in France.

Proceedings of the Scottish parliament.

English parliament had shewn. William had instructed his commissioner, the Duke of Hamilton, (Dalrymple's *Memoirs*, p. 376.), to comply with the various demands of the Scottish convention in favour of popular rights; but Hamilton, from interested views, concealed from the boroughs the orders which he had received in favour of liberty; and the minds of the nation were alienated by this treachery, as well as by the king's refusal to proscribe and exclude the whole of the Tory party,—a measure which the king saw would create a host of enemies from despair.

Civil war excited in Scotland by Viscount Dundee.

While the parliament was thus agitated, a civil war was excited by the Viscount Dundee, under whose new title and splendid achievements the cruelties of Grahame of Claverhouse were for a while forgotten. When the Scottish convention had declared for William,—when Balcarras, and the other leaders of the Tories, were secured in Edinburgh,—Dundee, more fortunate, escaped with fifty horse. He had left behind him the Duke of Gordon in possession of Edinburgh castle; but, as that nobleman, despairing of relief, and pressed by a siege, was reduced to capitulate within a month, the cause of James in Scotland depended now upon his sole conduct. Dundee retired into the Highlands from the pursuit of General Mackay,—was joined by the Macdonalds,—surprized Perth,—and levied contributions to the very gates of the town of Dundee. Being joined by several of the mountain clans, he found himself, at one period, at the head of 1700 men; but, as the Highlanders, loaded with plunder, deserted in numbers, he retired into the wilds of Lochaber, and waited the arrival of succours from Ireland. When 300 recruits arrived from that country, Dundee once more called the Highlanders to his banners. With a force exceeding 2500 men, he gave battle, at the pass of Killycrankie, to Mackay, who, with considerably superior numbers, was advancing from Blair. By a rapid descent in thick and separate columns, the Highlanders overpowered the thin lines of Mackay, and would have scarcely left a man to report the defeat, had not the death of Dundee, in the moment of victory, left the command in less vigorous hands. Cannon, an Irish officer of indifferent abilities, succeeded him, whose forces, after a repulse by a single regiment of the Cameronians, dispersed, and returned to their homes.

Battle of Killycrankie.

James lands in Ireland,

March 14.

These events took place during the summer of 1689. In the spring of the same year, James arrived from France at Kinsale in Ireland, where he found Tyrconnel, the Lord Lieutenant, devoted to him, and an army of 38,000 men in arms to support his cause. It may naturally be asked, by what neglect, on the part of William, the interests of the late king were allowed to assume so prosperous an aspect? and, indeed, the delay in settling Ireland is one of the parts of William's conduct which seem least to accord with the usual prudence and energy of his character. Since the period of James's flight from England, the Irish Protestants had beheld the increase of the Lord Lieutenant Tyrconnel's preparations with all the exaggerated terrors of an expected massacre by the Papists. The city of Londonderry, however, shut her gates upon his forces, and the whole of Ulster united in measures for their defence, and for continuing their dependence upon England. James was attended from France by about 2500 British and Irish followers, and 100 French officers. His reception at Kinsale was cordial, and his public entry into Dublin magnificent. About 10,000 Protestants gathered together around Londonderry, and an increasing number rallied themselves at Inniskillen.

Surrounded by the congratulations of Dublin, James ordered a parliament to assemble on the 7th May. Before it met, he quitted Dublin to lay siege to Londonderry, a town whose memorable siege will be described under a different article. (See LONDONDERRY.) The relief of the garrison by Kirke, gave a decisive blow to the fortunes of James, while the example of the besieged raised the emulation of the Irish Protestants. Six thousand of Tyrconnel's troops were soon after defeated at Newton Butler by a band of 2500 Inniskilleners; and the courage of the Protestants rose in every quarter.

James's parliament, which assembled at Dublin, could only vote him a revenue,—they could not give it. By forcing a coinage of brass money to pass for fourteen times its value, he raised a temporary supply; but, as France refused him pecuniary aid, his adherents were supported by rapine; and, to increase his difficulties, the French auxiliaries were engaged in perpetual quarrels with the Irish. At last, on the 12th of August, William's army, amounting to 10,000 men, arrived from England, under the command of the aged Duke of Schomberg; and, landing on the coast of Donaghadee, besieged Carrickfergus, and forced its garrison to capitulate. But the campaign of Schomberg was both short and indecisive. Encamping in a low and damp situation near Dundalk, his troops were wasted by disorder. The enemy, no less enfeebled by sickness, were fortunately little able to annoy them; and, at the approach of winter, both armies retired into winter quarters.

In the space of little more than a year after William was upon the throne, he broke with that parliament, and dismissed that party, which had placed him on it. Provoked at the hostility of the Whigs in his first parliament, he determined to call another, and to throw himself into the hands of the Tories. In the new elections, the Tories generally prevailed. The privy seal was taken from Lord Halifax, and Lord Shrewsbury resigned. After these changes, William announced his intention of conducting the war in Ireland in person. Leaving London on the 4th of June 1690, he arrived at Carrickfergus on the 14th of the same month. As he advanced, the Irish army abandoned Ardee, and fell back to the south of the river Boyne, where they were joined by James at the head of his French auxiliaries. William's forces, composed of English, French (French Protestants), Dutch, Brandenburghers, Irish, and Danes, amounted to 36,000 men. James, having an army every way inferior, resolved, after much hesitation, to give battle; but took his measures rather for securing a retreat than to make a determined de-

WILLIAM & MARY. 1690.

fence. William directed the river to be forded in three places, and the attack begun from as many quarters. Schomberg, with the right wing of 10,000 men, passed some fords up the river, and a bog on the other side, and attacked the forces of James, who rather watched than opposed him, and who fled to secure the pass of Dunleck, which guarded the Irish rear. The centre next crossed, and were maintaining a doubtful contest with their French and Irish opponents, when William, who passed the river farthest down with his cavalry, followed the army of James as it retired in a body around their king. While the armies were yet fighting, James rode off from the field of battle. The rout of the Irish soon after became complete; and they fled without obeying their sovereign's last injunction to defend the pass of Dunleck, leaving 2000 killed and wounded on the field. The day before the battle, William had received a slight wound by a shot which grazed his shoulder, from a cannon which the enemy privately brought and planted opposite to the spot where he was reconnoitring the ground; but the accident diminished neither the health nor spirits of the king, who, in the heat of the battle, was, as usual, at the head of his cavalry, with his sword drawn, and his arm thrown loose from its bandage. The remains of the Irish army retired precipitately to the Shannon; and the late king, determining to go to France, took his leave of them, leaving orders behind him to continue their resistance.

The news of William's victory diffused exultation over the minds of the English, and came in good time to console them for the issue of a naval engagement which had mortified their national vanity. Torrington, with 34 English and 22 Dutch ships, engaged the French Admiral Tourville off Beachy Head. The Dutch, who had been most prompt in the engagement, were the greatest sufferers; but such was the state of the combined fleets after the battle, that they, next day, declined renewing it, and were obliged to retire into the Thames.

The king returned to England after the battle of the Boyne. General Ginckle, who commanded in his absence, pursued the Irish, now commanded by St Ruth, to the Shannon; crossed the river by a bold enterprise, and engaged their whole army at Aughrim, where the Irish were defeated with great slaughter, and driven to make their last stand at Limerick, after losing 5000 men.

The siege of Limerick commenced in August, and for six weeks the enemy made a gallant defence, and were not likely to make a speedy submission. With the plans which William had formed for the greater objects of warfare and ambition, the prospect of a winter siege, and the renewal of a spring campaign, in Ireland, were by no means desirable. He gave orders, therefore, to Ginckle, to make the Irish the most favourable offers. By the treaty of Limerick, therefore, which was soon concluded, the Irish were granted their pardons, their estates, and a general amnesty of debts, incurred during hostilities. Attainders and outlawries were done away. The Catholics were to receive the same toleration as under Charles II. Such as were inclined to go to France, were to be landed there, with their effects, at the expense of the English government. Fourteen thousand men, with arms in their hands, availed themselves of this last article, and consented to become, for ever, the subjects of a foreign power.

Plot formed in Scotland.

The defeat of Dundee subdued only the open enemies of the king in Scotland. An opposition to his measures was formed under the designation of the Club, or Country Party, and, among some of these,* a plot was laid for the restoration of James, by a coalition of the Jacobites and Presbyterians. The principal plotters were Montgomery, Ross, the Earl of Annandale, and Ferguson, men who had zealously promoted the revolution, but who sought revenge for being disappointed of the rewards which they expected. But the plot was dissipated by the king's commissioner, Lord Melville, obtaining extensive powers to conciliate the Presbyterians by timely concessions. The king's supremacy over the church was given up, Presbytery was confirmed on its broadest basis, and preparations were made to indemnify the patriotic Whigs, who had been suffering under the late tyrannical reigns. The conspirators, in dismay, hastened to save themselves, by revealing the plot to government; and Montgomery, the principal plotter, died in exile, of grief and vexation. Nevil Pain, an English agent in the business, suffered the torture—he was the last victim of that inhuman practice in Scotland.—Otherwise, the suppression of the conspiracy was creditable to the humanity of government, and not a single life was taken. But the double satisfaction arising from a plot being suppressed and popular grievances redressed, was quickly followed, in Scotland, by a lamentable and atrocious event, which forms the only indelible blot amidst the glories of William's reign.

Massacre of Glencoe. 1691.

Towards the end of 1691, the Highland Jacobite chieftains were intimidated by a severe proclamation, and hastened to disarm the resentment of government by submission. The last to submit was M'Donald of Glencoe, who, after travelling in vain to the governor of Fort William, hastened to Inverary, but was delayed by the snows, and unavoidable interruptions on the road, till the time of grace was expired. The sheriff of Inverary, however, moved by his intreaties and tears, administered the oath of allegiance, and certified the cause of his delay. But his oath was industriously suppressed by the advice of Stair, the president of the Scotch court of Session, and the certificate was erased from the list presented to the privy council. The Earl of Braedalbane, whose lands the Highland chief had plundered, and whose treachery to government, in negociating with the Highland clans, Glencoe had also exposed, instigated the secretary Dalrymple, son to Lord Stair, a statesman who had imbibed the bloody spirit of Lauderdale's administration, to co-operate with his savage resentment. They persuaded William that Glencoe was the main obstacle to the pacification of the Highlands, and concealing the circumstances in favour of the unfortunate chief, obtained orders for proceeding to military execution against his clan.

1692.

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* In the frantic plot of Montgomery, Rose, &c. it is probable that many of the country party were not implicated.

Britain.
William & Mary.
1692.

Massacre of Glencoe.

Glencoe had remained unmolested, and confident of pardon, at home, when a detachment arrived from Fort William, under Campbell of Glenlyon, whose niece had married one of Glencoe's sons. The soldiers were received on promise of peace and friendship, and were quartered among the inhabitants of the sequestered vale, when their orders arrived at midnight not to suffer a man under 70 to escape their swords. The orders were obeyed with a dreadful strictness. The inhabitants were massacred in their houses; some roused from their beds, and others when sitting round their fires. Women were butchered with their children in their arms. Thirty-eight persons were thus sacrified; but though the ends of the glen were watched, the rest escaped in a tempestuous night; the carnage, however, was succeeded by rapine and desolation, and the women and children stript naked, were left to explore their way to some shelter, or to perish in the snows.

Willingly would the mind ascribe to the immediate agents of this horrid business, all the execration that is due to it, and transfer it, if possible, from one of the greatest and best of sovereigns; but, after all allowances, it is impossible to exculpate William from all knowledge and consent in the transaction. He was beset, indeed, with sanguinary ministers, and he was, in some degree, deceived and betrayed into an act of cruelty, inconsistent with the general tenor of his mild and merciful character; but no enquiry was made at the time, and no punishment was afterwards inflicted on the authors of the massacre.

France prepares to make a descent on England

The king having settled the affairs of the nation, went abroad in March to promote the measures of the grand confederacy against France. Whilst he was thus employed, the emissaries of James conveyed notice to the disaffected at home, that the late king was preparing to make a descent upon England, at the head of 30,000 men, and that a French fleet which was to convey them would sail from La Hogue. The intrigues of James's friends had already been conducted within the verge of the court; a formidable party of the nobility was implicated in the present conspiracy; and, if we may believe the assertions of some writers, the Princess Anne, herself, sought to expiate her past conduct to her father, by infidelity to her sister. But the court of England was the easier informed of these designs, by pretended converts.* William, abroad, hastened the preparations of the Dutch, and detached several regiments from Holland. The measures of the queen's ministry at home, were prudent and spirited.

A camp was marked between Petersfield and Portsmouth; and the militia, both of England and Scotland, were called out. On the 18th of May, the combined fleets of England and Holland, consisting of 99 ships of the line, sailed from St Helen's. The main fleet of France, under Tourville, consisting of about 50 ships of the line, was at that time at sea in quest of the English, and was descried next day, about three o'clock in the morning, seven leagues from Barfleur. By the good fortune and good plans of the English council, the four allied fleets had united before they sailed, a circumstance unknown to the enemy, who, trusting that they should meet the allies in divisions, had ordered Tourville to give battle wherever he found them. The French admiral, either trusting to the defection of the English seamen, or impelled by his peremptory orders and his high courage, bore down with his flag ship, the Rising Sun, of 110 guns, upon the English admiral, Russel; and the other ships following soon after, the engagement became general. About four in the afternoon, a thick fog parted the combatants, but a running fight was renewed in two hours, which was again closed by darkness. The chace was continued next day along the French coast. On the third day, Tourville, with a part of the remains of his fleet, fled to Cherbourg. Eighteen more of the enemy sought refuge near La Hogue, and others escaped through the race at Alderney. The English Admiral, Delavelle, pursued and burnt several of the former, and then rejoined the commander in chief, who employed the subsequent days in attacking those ships which had repaired to La Hogue. They were now reduced to 13, but were covered by two forts, while the whole of the French army, and of James's followers, were drawn up on the adjoining shore. The ships themselves were drawn as far up upon the shallows as tides and cables could bring them. Nothing, however, could resist the British seamen, who crowded in barges, under cover of such frigates as could be brought sufficiently near, boarded the whole fleet, and climbing up the ships on one side, drove out the French with little resistance on the other, and then destroyed them. When James beheld the efforts of his late subjects thus employed against himself, he could not restrain his admiration of their gallantry; but exclaimed, "Ah, none but my brave English could do this!"

The victory of La Hogue overthrew, for the present, if it did not eradicate, the hopes of the Jacobites. William spent a considerable part of the succeeding year on the continent, in the conduct of those important campaigns against Louis which do not belong properly to our history. The other warlike enterprizes of England, during the same year, were unimportant; the political struggles between William and his parliament were vehement as before, but did not impede the supplies which the commons, in the midst of complaints at the king's rejection of several popular bills, (the bill for triennial parliaments in particular), still liberally granted. The king, who had, soon after his accession, thrown himself into the hands of the Tories, was induced, by the advice of Lord Sunderland, to recal a mixture of the Whigs into his councils. The effects of this change were displayed in the enactment of a bill for triennial parliaments in 1694, to which the king gave his assent; a renovation in the constitution, which unhappily was too soon forgotten. On the 28th of December, William was deprived, by death, of his consort Mary. She died of the smallpox in her 33d year, to the inexpressible grief of his majesty, who, for some weeks after her death, could neither see company, nor attend to the affairs of the state. The conduct of this princess has been taxed with want of natural affection, from the indifference with which she is said to have ascended the throne of her father, and witnessed his misfortunes; but it should be remembered, that William's marriage with her was founded upon affection, and that they had long lived in the most endearing connection of life, before the bigotry of her father precipitated him from the throne. She could not have deserted William; nor was she culpable to have endured with serenity the promotion of the cause of religion and human happiness, of which her husband was the leader. Her personal worth could not be small, nor her affections unamiable, to whom such a husband was so tenderly devoted.

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* It must be supposed that some of the Whig lords entered into James's designs only to discover and betray them to William. It is certain that James distrusted many of those new and secret adherents, and that William confided in them in the moment of danger. The most fortunate circumstance for the nation was, that Russel, the most important partizan, would not consent to abstain from fighting the French fleet, if he should meet it, with the king himself on board.

The great business of parliament from this period seemed to consist in restraining corruption, and bringing to justice several offenders in high station, who had grown wealthy upon the plunder of the public. The number of laws that were now enacted every session, seemed calculated for the safety of the subject, but in reality, were symptoms of the universal corruption.

William was willing to admit all the restraints they chose to lay on the royal prerogative in England, upon condition of being properly supplied with the means of humbling the powers of France. Though a friend to liberty from inclination, he did not sufficiently understand the complex nature of the British constitution to keep its parts in harmony. But if he could not be said to yield to his parliament from patriotic motives, he at least made his concessions the exchange for the means given to support him in great and laudable objects. The sums of money granted him for the prosecution of this war were incredible, and the nation not contented with furnishing him with such supplies as they were immediately capable of raising, involved themselves in debts, which have since accumulated so formidably. For this profusion it has been remarked, that England gained only the reward of military glory in Flanders, and of saving the Dutch. But to have checked the career of France, and to have prolonged for a while the independence of Europe, was certainly to have attained great objects.

The treaty of Ryswick at length put an end to this war. William returned to England in November 1697, and was received in London amidst the acclamations of the people. By the treaty of Ryswick, his title to the crown of England was acknowledged by France herself.

William 1698.

The Darien scheme.

Amidst the distractions of foreign politics, William had little leisure or inclination to attend deeply to the domestic affairs of England, and still less to those of Scotland. An event now happened, which excited the most violent ferment in the latter kingdom. By the recommendation of Paterson, an individual of splendid and enterprising genius and views, a settlement was formed by the Scotch on the isthmus of Darien, a situation admirably fitted for accomplishing the most gigantic efforts of commerce, and for uniting the trade of the European, Asiatic, and American continents. Twelve hundred settlers, after founding New Edinburgh, the capital of their intended colony, proceeded for some time with hopes and alacrity in forming their settlement, and repulsed the Spaniards who attacked them; but the English immediately demanded of William the suppression of this colonial rivalship of the Scotch. Spain remonstrated against a settlement on her territories; and William, afraid of a breach with Spain, coincided with the angry jealousies of both nations. The supplies of the colony were cut off from home; and after eight months, it was abandoned through famine and disease. Before the evacuation was reported, a second and a third expedition had sailed from Scotland, but they were again, as before, attacked by the Spaniards; and though they gallantly repelled an army of that nation, they were forced to capitulate to a fleet from Carthagena, on condition of being allowed to return home. The ships which were to bring them home, were unprovided for so long a voyage; and the few adventurers who survived, were left to languish in Spanish prisons, or to starve on English plantations. The Scottish nation awaked from its dreams of immense wealth, stript of its credit, its resources, and its trade; and there was scarcely one family which had not to mourn a lost relation, or a ruined fortune in this calamitous business. In justice to the memory of William respecting this transaction, it ought to be remembered, that the Scotch colonists had no distinct right to settle in Spanish America; and that a war with Spain, unpopular among the English, would have been the probable consequence of pleasing the Scotch.

The English army reduced by the parliament.

William returned from humbling his enemies abroad, only to be watched, distrusted, and humbled by his own subjects at home. As the project of humbling France was never distant from his mind, he had come to regard a standing army as indispensible in England. It is not impossible that his great mind, through the power of habit, and by constant practice in war, had acquired that love of military pomp and parade, which, in itself, is so unworthy of greatness. This passion for a standing army was, however, wisely checked by his parliament, who passed a vote for disbanding all his foreign troops, and reducing the whole army to 7000 men. The mortification which he felt on this occasion, is said to have inspired him for a time, with the resolution of abandoning the English sceptre and returning to Holland: his ministers, however, persuaded him to pass the bill for reducing the forces, and to change his resolution.

1700.

Expedition to the Baltic.

The rest of William's reign was employed in disputes with his parliament, which are not of the highest interest, as they did not relate to the primary points in the constitution. The only warlike enterprize in which the nation embarked from the peace of Ryswick to the king's death, was in aiding Sweden, when the kings of Denmark and Poland, with the elector of Brandenburgh, formed a league to crush the young Charles the XIIth. A fleet of thirty sail of English and Dutch was sent into the Baltic, under the command of Sir George Rooke, William. 1700.

who joined the Swedish squadron, and bombarded Copenhagen, to which the Danish fleet had retired.

Spanish succession.

The repose of Europe was again disturbed by the disputed succession to the Spanish monarchy. His Catholic majesty having, by his last will, bequeathed his whole monarchy to the second son of the Dauphin of France, the views of William, who had brought Louis himself to accede to the partition treaty, was wholly thwarted by the bequest of the Spanish monarch, and by Louis's acceptance of it.

1701.

After some negotiations at the Hague had succeeded to William's remonstrances with Louis on his acceptance of the Spanish testament, it was evident that England and the States would speedily be obliged, by force of arms, to maintain the partition treaty, or submit to see the Spanish monarchy become a dependency of France. The Emperor of Germany soon became an ally to the new confederacy against France, and a treaty was concluded between the three powers to procure a satisfaction to the emperor in the Spanish succession, and sufficient security for the commerce and dominions of his allies.

Death of the late king.

Amidst these negotiations, the late King James died at St Germains; he was comforted in his last moments by the promises of Louis to protect his son as the lawful monarch of England; but in the year before, the English parliament, by a resolution of greater effect, had debarred him from all hopes of the throne, by declaring the Princess Sophia Duchess Dowager of Hanover, and her heirs, the next in succession to the Princess Anne.

Nov. 1702.

William, who was the soul of every confederacy against France, used to retire to his country seat at Loo in Holland, where he had leisure and tranquillity to mature his councils, and draw the plans of his campaigns. In the last year of his life, he returned from this retirement to the troublesome government of England, where, however, he found the parliament amidst abundance of quarrels and complaints, ready to second him in the active measures which he had projected. In the mean time, his constitution, feeble from his untimely birth, and oppressed by the cares and fatigues of government, sunk under a complication of disorders; but the immediate cause of his death was a fall from his horse in one of his excursions from Hampton Court, by which his collarbone was broken.

Death of William.

He languished above a fortnight under an aguish fever, and expired in the 52d year of his age of an inflammation in his lungs. His person was of the middle size, ill-shaped, and ungraceful, except on horse-back: his nose was aquiline; but the harsh features of his countenance, which was pale and solemn, were enlightened by the piercing lustre of his eye.

His character.

His manners were silent, cold, and reserved; unfavourable impressions were sooner made on his mind than effaced from it; but his resentment never descended to the meanness of personal revenge. From a neglected education, he was insensible to the finer arts, and impatient, perhaps, of the minute details of public office; but his virtues were severe and exalted; his mind was ever intent on great designs; he had a sound judgment in weighing events, an invention fertile in resources, calmness in battle and danger,—fortitude, fidelity, and above all, an attachment to public liberty. If any abatement is to be made from this illustrious character, it is in the government of Scotland that the most exceptionable part of his conduct appears; but there he was obliged to confide in statesmen, trained up in the abuses of bad government, who betrayed him into arbitrary exertions of power. And, even in Scotland, amidst the conspiracies of the Jacobites, not a single person perished on the scaffold, nor was there a noble family ruined by forfeitures during his reign.

The importance of William's life was evinced by the joy that diffused itself through France at the news of his death: They could hardly restrain their joy within the bounds of decorum; and there were public rejoicings in Paris. When it was known in Holland, the States immediately assembled; for some time the deputies gazed at each other in silent fear and astonishment: They then sighed, wept, and interchanged embraces and vows, that they would act with unanimity, and expend their dearest blood in defence of their country.

William was succeeded by the Princess Anne, who had married George Prince of Denmark. She ascended the throne in the thirty-eighth year of her age, to the general satisfaction of all parties. She had been taught by her relations of the Clarendon family to favour the Tories; but the influence which the Countess of Marlborough, whose husband headed the opposite faction, prevailed against Rochester, and those who opposed the war with France. When the privy council had therefore assembled and deliberated, the queen declared her intention of continuing warlike preparations, and abiding the cause of her allies. Her promise was confirmed by the arrival of the Earl of Marlborough as ambassador to the States, who inspirited the Dutch, and concerted the operations of the campaign. By agreement, war was declared against France, in one day, at Vienna, London, and the Hague. Marlborough, who had been named by the queen commander of the forces both abroad and at home, was chosen by the allies generalissimo of the whole army. An indefatigable warrior in the camp, and a skilful politician in the court, he became the most fatal enemy to France that England had produced since the days of Cressy and Agincourt. He had learnt the art of war under Turenne, in whose army he was known by the name of the handsome Englishman, and, from his early displays of skill and gallantry, Turenne himself had predicted his greatness. To this general was opposed, on the side of France, the Duke of Burgundy, grandson of the king: a youth more fitted to grace a court than to conduct an army, but who was supported by the talents of the Marshal Boufflers, his second in command. In the first campaign Marlborough repaired to the camp of the allies at Nimeguen, where he found himself at the head of 60,000 men. By motions at once bold and sagacious, he obliged the French to retire before him, without their daring to hazard a pitched battle; drove them out of Spanish Guelderland; and, having concluded the campaign by taking Liege, returned to reap his honours in London, where he was thanked by the House of Commons, and created a duke by the queen.

The national arms were less successful by sea. Sir

An army under Lord Peterborough sent to Spain.

Barcelona besieged,

and a great part of Spain subdued.

Duke been permitted to take advantage of their consternation as he proposed, he might have gained a complete victory; but the Dutch officers would not consent to the charge; and the indignation of the English at their coldness in this business, may be reckoned one of the chief causes that alienated the affections of the nation towards their allies, and disgusted them at an expensive though brilliant war. The capture of Gibraltar had already signalized the British arms in Spain, where the greatest efforts were made to fix Charles, Duke of Austria, on the throne, in opposition to Philip IV., the grandson of Louis XIV., who had been nominated successor by the late king of Spain. The greatest part of Spain had declared in favour of the latter prince; but Charles, supported by the allies, and invited by the Catalonians, was assisted by England with a fleet and an army.* The troops were commanded by the Earl of Peterborough, a man of deformed shape, and diminutive stature, but of such romantic valour, that his services were reckoned equal to all the other aids that were lent to the Duke of Austria. The first attempt in Spain was to besiege Barcelona, a strong city, with a garrison almost equal to his own army. Never was an attempt more bold or more fortunate. The operations began by an attack on fort Monjuic, strongly situated on a hill that commanded the city. The outworks were taken by storm. A shell chanced to fall into the fort, and blew up the powder magazine, on which the garrison of the fort surrendered in consternation. But the town still remained unconquered. It, however, capitulated after a treaty. During the time of the treaty, the Germans and Catalonians, who acted with the English, entered the town, and plundered all before them. The governor complained to Peterborough of the breach of faith. Peterborough knew that the plunderers were not his own troops, but led on his English against them, drove them out, and returned to finish the treaty. His good faith and generosity facilitated the capitulation. The conquest of all Valencia was ensured by the capture of this place, which the enemy made a vain attempt to retake. The partizans of Charles flocked from every quarter; he subdued Arragon, Granada, and Carthagena. The Earl of Galway entered Madrid in triumph, and proclaimed him king of Spain.

Campaign of 1706.

Battle of Ramillies.

These successes were soon eclipsed by the triumphs of Marlborough in Flanders, during the campaign of 1706. The army of Villeroy, near Tirlemont, amounted to 80,000 men, and with these he had orders to attack the allies, whose numbers were nearly equal, before the Danish and Prussian succours should reach Marlborough. Villeroy, with the intention to be the assailant, was himself attacked in a situation which prevented him from exerting all his strength. With the river Mehaigne on his flank, his centre occupied the village of Ramillies; but a marsh was before his left, which Marlborough knew that he could not cross, and therefore bore down upon his centre. A victory, nearly as splendid as that at Blenheim, was obtained. About 6000 French were made prisoners, and 8000 were killed or wounded. The whole of Brabant was gained by the victors. Louis XIV., lately the tyrant of Europe, now trembled for the safety of his capital, and was saved from ruin only by dissensions in the English cabinet. The councils of the queen had hitherto been governed by a Whig ministry, who were sincere in the design of humbling France. But from different concurring causes, the influence of the Whigs began to decline, and the general disposition of the nation to lean to Toryism. Among allies it is difficult long to preserve unanimity; and already the English had conceived many causes of offence at their confederates in the war. Some of the writers of the Tory faction were men eminent in literature, and they inveighed incessantly against the personal ambition and selfishness of Marlborough and Godolphin, who governed the queen, and lavished the treasures and blood of the nation, in prolonging a war for the personal glory and private emolument of conducting it. Small as the taxes then were, the people were taught to consider them as insupportable. Amidst these causes of discontent, the genuine principles of Toryism had been also lately awakened, by some discussions respecting the toleration of the dissenters; and doctrines of tyranny, and passive obedience, were promulgated by those who inveighed against the war, worthy of the worst years of James and Charles II. As the queen's understanding was very limited, we may easily suppose, that these doctrines of the Tories made her more favourable to them than all their other complaints against the Whigs. The slightest misfortune in the war, was a sufficient encouragement to those who declaimed against its inutility. The loss of a battle in Spain, near Almanza, where the Earl of Galway was defeated and taken prisoner, with a large English force, dispelled the inebriation of former success. In consequence of this victory, all Spain, except Catalonia, returned to the dominion of Philip. Other disasters increased the national discontent. The Duke of Savoy and Prince Eugene were foiled in an attempt upon Toulon. A fleet under Sir Cloudesly Shovel, was wrecked upon the Scilly islands. While Marlborough was in the field, it is true, there might still be sanguine prospects of success on the continent; but though the Duke, in the campaign of 1707, drove the French before him from one post to another, and forced them to take shelter under the cannon of Lisle, and behind the Scheldt, yet he gained no general pitched battle, and his military genius suffered a diminution of renown, not that he had committed any fault, but that he had not dazzled the public eyes with such splendid achievements as those of Blenheim and Ramillies.

The leaders of the Tories were Harley, afterwards Earl of Oxford and St John, afterwards Lord Bolingbroke. Harley insinuated himself, by his address, into the queen's favour, and ultimately succeeded in undermining the Whigs. St John, for a while, acted subordinate to Harley, although his lofty enterprise, ambition, and genius, made him at last the rival of his patron. When Marlborough and Godolphin perceived the increasing influence of Harley, they wrote to the queen, that they could serve her no longer should Harley continue secretary; and they

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* A fleet of 30 ships of the line and 100 transports, and 9000 men.

Anne. 1707.

even expostulated with their sovereign in a personal interview. The immediate consequence was, that the queen dismissed Harley, dreading to be abandoned by her other ministers; but the boldness of the Whig leaders secretly offended her, and promoted their own downfall.

The most important event of this reign, was the union that took place in 1706 between the two kingdoms of England and Scotland. This measure had been strongly recommended by King William, almost with his dying breath; and, as early as 1702, commissioners from both kingdoms had met at Westminster, but such difficulties occurred, that the treaty was then adjourned. It was resumed, however, within a few years; for, although the mutual jealousies of the two nations interposed many obstacles, it was of vital importance to both. To the present Whig ministers of England, it was desirable, as a matter of party, for the easier management of Scotland. It was recommended, however, by nobler prospects of advantage, in securing the Protestant succession; which, although settled by the English parliament, was still endangered in Scotland by various causes. The Jacobites of Scotland were numerous: they spoke in Parliament in open opposition to government; and they derived strength by their pretences to patriotism, as well as by acting in connection with a really patriotic body in Scotland, those Whigs who had promoted the revolution, but who saw with indignation the interests of their country made subservient to those of England. Among these, the most distinguished was Fletcher of Salton, a man of high, untainted principles, the sworn enemy of arbitrary power, attached to the Protestant succession, but disdaining to call even that succession a blessing; while the trade of Scotland was shackled, her statesmen the venal tools of an English cabinet, and her whole existence made dependent on England. By the Country Party in the Scottish parliament, an act was passed, which menaced the English with a separate succession, by declaring that the same king should not succeed to the throne of Scotland after her present majesty, unless such conditions of government were previously framed as should secure from English influence the honour and independence, the religion, liberty, and trade of Scotland. Godolphin and the Whigs are said to have advised the queen to confirm this high-spirited act of the Scottish parliament, in order to alarm the English with the boldness of their designs, and thereby prepare them for [illegible] union which should give England an equivalent for their concession. When the threat of admitting a separate crown was once uttered by Scotland, an union was evidently necessary to quiet the mutual alarms of the two nations. The first important advantage which England gained in the previous treaty, was by the concession of the Scottish parliament, that the queen, or, in other words, the English ministry, should nominate the commissioners. These were chosen with an artful admixture of each party, that their concurrence in the union which was previously secured might abate the opposition of their friends in parliament. On the 16th of April 1706, the commissioners for both kingdoms met in the Cockpit, near Whitehall. The Scotch nation were not averse from a federal union, and their commissioners proposed it in place of an incorporating union, rather to gain credit with their countrymen than from any hopes that the proposal would succeed. On the 22d of July, however, the terms of an entire union were mutually signed, and next day presented to her majesty at St James's. By these it was agreed that the two kingdoms should for ever be subject to one crown and parliament; should enjoy the same privileges, and be subject to the same regulations in trade; and (with a few exceptions in favour of Scotland) to the same taxes, customs, and excise. An equivalent of £398,000 was to be paid to Scotland, by England, for her customs and excise, so far as these were appropriated to the discharge of her national debt; but the loan was to be restored, with interest, in 15 years. Forty-five commoners and sixteen peers were to form the representation of Scotland in parliament. The same weights and measures were appointed, and the same seal for public transactions; the laws of Scotland, respecting public and private rights, were preserved, with this difference, that the former might be reduced to an uniformity through the united kingdom; but the latter were to receive no alteration, unless for the evident benefit of the subject. These terms were digested in 29 articles, for the consideration of each parliament; and the first of May 1707 was fixed for the commencement of the union.

Outrages in Scotland in consequence of the union.

The Scotch, though not averse from a federal union, were, throughout all ranks, averse from an incorporation. When, on the opening of their parliament by the queen's commissioner the Duke of Queensberry, the terms of the treaty were revealed, the nation passed from a deep and anxious suspense to an universal burst of indignation at the surrender of the independence and sovereignty of the ancient kingdom. Multitudes resorted from the country to the capital; the rage and numbers of the tumultuous people increased as they ranged the streets in quest of the commissioners, whom they accused of betraying their country; and nothing but concert and a leader were wanting to overturn the parliament, together with the union. In vain the privy council of Edinburgh issued a proclamation against riots, commanding all persons to retire at beat of drum. The Duke of Queensberry, through double lines of horse and foot, was obliged to pass along the streets at full gallop, amidst the curses and reproaches of the people, who pelted his guards, even wounded some of his friends who attended him in his coach. Insurrections, in arms, were even projected in many parts of Scotland, which were only disappointed by the treachery of the leaders. So outrageous was the capital, so numerous the petitions from all parts, and so alarming the appearance of Scotland, that the commissioner and the chancellor wished to adjourn the parliament, till the ferment should subside; but Stair, Godolphin, and the other Whigs, who saw that delay would ruin the business, urged them to perseverance, and were determined to maintain it by force of arms, promising supplies of troops from England, Ireland, or even Flanders, if they should be required. The secret history of the intrigues and corruption that produced the union, has been lost, or industriously suppressed;

but, it is certain, that above fourscore members were dependents on the court, or influenced by honourable and lucrative places, or by the contingent payment of arrears and public debts. The Country Party was equally numerous; but the distribution of twenty thousand pounds, from the English treasury, among nineteen peers and eight commoners, chiefly of the party called the *Squadroné Volante*, * from their fluctuation between the Court and Country Party, determined a majority in favour of the union.

Proceedings in the Scotch parliament regarding the union.

Eloquent speech of Lord Belhaven against the union.

When the Scottish parliament proceeded to debate, every article of the treaty was made the subject of a protest. The Country Party maintained that the supposed benefits of commercial intercourse were a mockery, in return for the rights of independent legislation; and conjured their countrymen never to accept of a poor equivalent, and the right of trading to the English plantations, as a compensation for the free trade which they had hitherto enjoyed to the Levant, the Baltic, France, Spain, Portugal, Holland, and the Dutch plantations, a commerce which would now be fettered with restrictions, duties, and customs. "Methinks I see a free and independent kingdom," said the patriotic Lord Belhaven, "delivering up the great object of dispute among nations, for what the world has been ever fighting, and all Europe is now engaged in war,—the power to manage their own affairs, without assistance or controul. I see the present peers of Scotland, whose ancestors have exacted tribute through England, walking like English attornies in the court of requests; while, at home, a petty English exciseman shall receive more homage and respect, than were ever paid to the greatest of their progenitors. I see the estate of barons, the bold assertors of our liberties, in the worst of times, setting a watch upon their lips, and a guard upon their tongues, to avoid the penalties of unknown laws; and the burrows walking through their desolate streets, drooping under disappointments, and wormed out of the branches of their former trade. I see the honest and industrious tradesman, loaded with new taxes and impositions, disappointed of the equivalent, eating his saltless pottage, and drinking water instead of ale. I see the incurable difficulties of the landed gentry, fettered with the golden chain of equivalents, their daughters petitioning for want of husbands, and their sons for want of employment; but, above all, I see our ancient mother Caledonia, like Cæsar, sitting in the midst of our senate, looking mournfully around, covering herself with her royal garment, and breathing out her last words, '*And thou, too, my son*,' while she attends the fatal blow from our hands. Patricide is worse than parracide; to offer violence to our country is worse than to our parents; but shall we, whose predecessors have founded and transmitted our monarchy entire, shall we be silent when our country is in danger, or betray what our progenitors have so dearly purchased. The English are a great and glorious nation. Their armies are every where victorious; their navy is the terror of Europe; their commerce encircles the globe, and their capital has become the emporium of the whole earth. But we are obscure, poor, and despised, though once a nation of better account, situate in a remote corner of the world, without alliances, and without a name. What then can prevent us from burying our animosities, and uniting cordially together, since our very existence as a nation is at stake? The enemy is already at our gates; Hannibal is within our gates. Hannibal is at the foot of the throne, which he will soon demolish; seize upon these regalia, and dismiss us never to return to this house again! Where are the Douglasses, the Grahames, and the Campbells, our peers and chieftains, who vindicated, by their swords, from the usurpations of the English Edwards, the independence of their country; which their sons are about to forfeit by a single vote. I see the English constitution remaining firm; the same houses of parliament, the same taxes, customs and excise, the same trading companies, laws, and judicatures; whilst ours are either subjected to new regulations, or annihilated for ever. And for what? that we may be admitted to the honour of paying their old and presenting a few witnesses to the new debts which they are pleased to contract. Good God, is this an entire surrender! My heart bursts with indignation and grief, at the triumph which the English will obtain to-day over a fierce and warlike nation, that has struggled to maintain its independence so long; but if England should offer us our conditions, never will I consent to the surrender of our sovereignty, without which, unless the contracting parties remain independent, there is no security different from his who stipulates for the preservation of his property when he becomes a slave." The eloquence of Belhaven and Fletcher were exerted in vain; the union was determined in the Scottish parliament, by a majority of 33 votes.

The articles of union were approved of in the English parliament by a large majority, in spite of the opposition of the Tories. Addresses and rejoicings followed it in England, but a sullen and inflexible silence was observed in Scotland; and instead of the union, the Pretender's birth-day was publicly celebrated. An influx of English revenue officers overspread the country, which, till then, had been unacquainted with the oppressive laws of revenue. Whatever were the merits of the union, it would have left Scotland in a worse situation than before, if the Scottish privy council had not been abolished; a body which, acting without the restraint of a native parliament, would have soon degenerated into the tyranny of former reigns. From the same enlightened views which produced the union, the abrogation of this body was concerted by Lord Somers and the principal Whigs, and was accomplished by a bill which passed both houses in the succeeding year, for "*rendering the union more entire and complete.*"

Meanwhile the importunities of the Jacobites, and the indignation of Scotland, had roused the attention of the French court. A naval expedition was prepared at Dunkirk, but its destination was prematurely discovered by the Pretender's arrival. The French squadron, however, reached the Scottish coast, and was only prevented by overshooting the Forth in the dark, from landing the Pretender with 5,000 regular troops at a time when there were not half that number of British forces in Scotland; when the fortresses were in doubtful hands; and when the equivalent was in Edinburgh castle, then unprovided for defence. The northern nobility, Gordon, Athol, Errol, Panmure, and others, had engaged to take arms; but the French retired on descrying the English fleet, and the prisons were immediately crowded with suspected persons. Among these, were Belhaven and Fletcher, who were conveyed to London; and the prostrate nation was unnecessarily insulted with the spectacle of its nobility, its gentry, and its patriots, led in ostentatious triumph to the English capital. Belhaven did not long survive his country's and his own disgrace, but died soon after his release of grief and indignation. A few who were remanded for trial to Scotland were acquitted by the justiciary court, in consequence of a list of witnesses having been refused to them; an acquittal which disappointed and enraged the English ministry, and occasioned their obtaining a bill in the succeeding parliament, for extending the English treason laws to Scotland.

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* The leaders of the Squadroné, among the Peers, were Marchmont, Montrose, Roxburgh, and Tweedale.

The triumphs of the Whigs were carried still higher after the union by the successes of the allies in Germany. In 1708, the allied and French armies met at Oudenarde, on the Scheldt, where the latter were defeated with immense loss; and Lisle, Ghent, Bruges, and the other strongest towns of Flanders, fell into the hands of the victors. The campaign secured the Dutch frontier, and left France open to invasion.

The French monarch, long persecuted by fortune, and every hour fearing for his capital, once more petitioned for peace. The Tories, some from a partiality to France, and others from conceiving the war unnecessary for national advantage, were desirous to put an end to it; but when conferences were at length begun at Gertruydenburgh, they were conducted under the influence of Marlborough, Eugene, and Linzendorf, all three entirely averse to the treaty. The French ministers were subjected to every species of mortification, their conduct narrowly watched, their master insulted, their letters opened. They offered the utmost concessions to abandon Philip, and even to aid in dethroning him, and to grant the Dutch a large barrier; but the conference was broken off, and Louis resolved to hazard another campaign.

The first attempt of the allies in the campaign of 1710, was on the city of Tournay, strong by art and nature, and garrisoned by 12,000 men, which surrendered after a dreadful siege of 21 days. They concluded the campaign by taking possession of Mons after the battle of Malplaquet, in which the French, 120,000 strong, were posted behind the woods of La Merte and Tanieres, in a camp that seemed impregnable with triple entrenchments. On the 11th of September, Marlborough led the allies to storm this position, and drove the French at last from it after a dreadful carnage, in which the allies lost not less than twenty thousand men.

But in spite of splendid victories, the influence of Marlborough and the Whigs was declining. The influence of the Duchess of Marlborough, which had long been almost despotic over the queen, was supplanted by another favourite, Mrs Masham, whom the duchess herself had raised to favour. Mr Hill, the brother of the new favourite, being appointed by the queen to the command of a regiment, the Duke of Marlborough sent a letter to the queen, desiring she would permit him to retire from his employments. This was the conjuncture for which the Tories had long wished, and with which the queen herself was secretly pleased; and she was exhorted by the Tories to set herself free from an arbitrary party, by which she had been long kept in dependence. The Earl of Godolphin, the duke's son-in-law, was divested of his office, and the treasury was submitted to Harley. Lord Somers was dismissed from being president of the council, and the Earl of Rochester appointed in his room: not a Whig was left in office, except Marlborough himself, who retained his employments for some time, the object of envy and reproach.

The Tories come into office.

The last campaign, however, of this great commander, exceeded, if possible, his other exploits. Villars, the French commander, had prepared for the campaign of 1711, by fortifying his lines from Bouchain, on the Scheldt, along the Sanset and the Scarpe, so strongly, that he pronounced them impregnable, and called them the *ne plus ultra* of Marlborough. Marlborough, however, crossed them without the loss of a man, by making a dextrous feint of attacking them in one quarter, and suddenly marching to surprise them in another. After taking possession of the enemy's lines, he besieged Bouchain, and obliged the garrison to surrender prisoners of war. This was Marlborough's last exploit: He had never fought a battle which he did not win, nor laid siege to a place which he did not take. By his final campaign, he left the allies in possession of the Maese almost as far as the Sambre, of the Scheldt from Tournay, and of the Lys as far as it is navigable. They had reduced Spanish Guelderland, Limbourg, Brabant, Flanders, and the greatest part of Hainault, and had opened a way into the very heart of France. The duke returned to England, after humbling her proudest enemy, to receive in his own person every indignity that party-spirit and ingratitude could attach to him. He was accused of having taken a bribe from a Jew, who contracted to furnish the army with bread; and with having appropriated $2\frac{1}{2}$ per cent. from the pay of the foreign troops. The present from the Jew was a customary perquisite, and the per centage had been granted by an express warrant from the queen. The money had been expended in procuring private intelligence for the army; and the value of the intelligence which the duke had always procured, may be best estimated by his successes. He was, however, dismissed from his employments.

Campaign of 1711.

Duke of Marlborough dismissed.

On his removal, the command of the English army on the continent was given to the Duke of Ormond, who had private orders not to act with vigour against the enemy: a caution scarcely necessary to a general, who was every way unqualified to follow up the career of Marlborough; and which leaves us at a loss, whether most to admire the meanness or the inconsistency of a cabinet, who durst not at once conclude a peace till they had made the war disgraceful. The defection of the British troops was severely felt

The command of the army given to the Duke of Ormond.

Britain. Anne. 1711.

by the allied troops, who soon suffered a severe check at Denain. Prince Eugene was unable, alone, to resist the progress of Villars and Douay. Quesnoy and Bouchain were recovered by the French in this disastrous campaign. The immediate and rapid successes of France, after Marlborough's removal, furnishes the best arguments for condemning that false pity towards Louis, which the Tories of that period so deeply cherished, and the relaxation of that hostility against France, which, if kept up at the beginning of the century, might have saved Europe from subjugation before the end of it.

Conferences for peace, 1712;

In the mean time, conferences for peace had been opened at London, and the Earl of Strafford had gone as ambassador to Holland for the same purpose. Neither the influence of the Whigs at home, nor the visit of Prince Eugene, who came to London in order to excite the public spirit against the negotiations, could intercept, or even retard them. The treaty began at Utrecht, and a peace was concluded in 1713, between France and Britain. By this peace it was stipulated, that Philip, who had been settled on the throne of Spain, should renounce all right to the crown of France; that the Duke of Berry, his brother, the presumptive heir to the crown of France after the death of the Dauphin, should also renounce his right to the crown of Spain, in case he became king of France. The Duke of Orleans was to make the same resignation. The Duke of Savoy had the island of Sicily, with the title of king, with Fenestrelles, and other places on the continent. The Dutch had that barrier granted them which they had so long sought for; but if the house of Bourbon was stript of some dominions, in order to enrich the Duke of Savoy, on the other hand, the house of Austria was taxed to supply the wants of the Hollanders, who were put in possession of the strongest towns in Flanders. In behalf of England, it was agreed that the fortifications of Dunkirk should be demolished, and its port destroyed. Spain surrendered Gibraltar and the island of Minorca. France resigned Hudson's Bay, Nova Scotia, and Newfoundland, but was left in possession of Cape Breton. Among the articles which reflected honour on the English, the liberation of French Protestants, confined for their religion, was not the least important. To the emperor, the kingdom of Naples, the duchy of Milan, and the Spanish Netherlands, were assigned. Prussia was allowed Upper Guelder; and a time was fixed for the emperor's acceding to these resolutions, for he had hitherto refused to assist at the treaty.

Which is concluded, Mar. 1713.

The subject of the union again brought before parliament.

The union with Scotland at first gave so little satisfaction, that, before six years had elapsed, the same party by whom it was established proposed to dissolve it, from the real or imaginary injuries which the nation had sustained. On a day appointed to consider the state of the nation, the Earl of Seafield enumerated the grievances which the Scotch had endured: the introduction of English laws against treason; the declaration of their peers being incapable of acquiring honours; and the oppression of a tax,* which the country could not sustain. He was seconded by Mar, Argyle, and the Scottish peers. The English Tories, however, concurred in preserving an union which they had formerly so much opposed. The English Whigs, apprehensive of an obscure design which the queen was said to entertain, of introducing her brother, the Pretender, into Scotland, and securing his succession to the crown, listened to the assurances of the Scotch, that they would support the Protestant succession if the union were dissolved, warmly supported the proposal. So nearly were the parties balanced, that the motion was rejected by only four votes.

During the remainder of Anne's reign, the Tories retained their power, with a security which was only disturbed by their own quarrels. The cabinet was a scene of the bitterest altercations between the followers of Bolingbroke and of Oxford. The former, daring, proud, and impetuous, carried the designs and zeal of the Tory party to the utmost pitch; the other was for a reconciliation with the Whigs, whose resentment he feared, as the queen's health began visibly to decline. Bolingbroke prevailed. Oxford was removed from the treasury, while the suddenness of his fall occasioned the utmost confusion at court. The fatigue of attending a long cabinet council had such an effect upon the queen's spirits and constitution, that she declared she could not outlive it, and was immediately seized with a lethargic disorder. On the 30th of July, when her life was despaired of, the committee of the council assembled at the cockpit; adjourned to Kensington, being informed of the desperate situation in which she lay, repaired to the palace, and, without being summoned, entered the council chamber. By their advice, all privy counsellors in or about London were invited to attend, without distinction of party. Somers, and many others of the Whigs, immediately repaired to Kensington. By their measures, the designus of Bolingbroke, and those who favoured the Jacobite succession, were defeated. Troops were ordered to London; the heralds-at-arms were kept in waiting; and precautions were taken to secure the sea ports, and to overawe the Jacobites in Scotland. The queen continued to dose in a lethargic, insensibility, till the first of August, in the morning, when she expired, in the 50th year of her age, and in the 13th of her reign; and with her ended the race of Stuarts. See ANNE.

George I. son of Ernest Augustus, elector of Brunswick, and Sophia, grand-daughter to James I. succeeded, pursuant to the act of succession, in his 55th year. In the new parliament, which was summoned, the Whigs had by far the majority; full of the strongest aversion to the Tories, and led on by the king himself, who made no secret of his displeasure at the party who were accused of having intended to exclude him from the throne. The commons began the expression of their resentment by arraigning Lord Bolingbroke for high treason; but that intriguing statesman disappointed their vengeance by flying to the continent, from whence he solemnly declared his having cherished no favour for the Jacobites, though he afterwards embarked in the Pretender's interest. Robert Earl of Oxford was impeached for the same crime, and was committed to the Tower, where he remained for two years. When he was brought to trial, a dispute arose among the commons, who were to be summoned to impeach him, which prevented their appearance; and he was discharged for want of accusers. While these severities were attempted against an humiliated faction, some popular disturbances, which, though transient and easily suppressed, gave alarm to a timid and jealous government, drew forth a most tyrannical edict against rioting, which made it unlawful for even a group of people to assemble on the streets. In this system of proscription, exclusion, and jealousy, the Whigs were only imitating the recent conduct of their adversaries, but they improved upon the example; they converted the Tories into Jacobites, and filled the nation with tumult and discontent. The Earl of Mar, the secretary of state for Scotland, professed an early allegiance to George, and procured a loyal address from the Highland clans; but the contumelious refusal of his overtures, and the fate of Oxford, Strafford, Ormond, and Bolingbroke, drove him to despair.

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* A tax upon barley, which, from the inferiority of the Scotch barley, was unequal, and distressing.

On repairing to the Highlands, he was joined by 10,000 men from clans or families disgusted at the union, or attached to the hereditary descent of the crown. With these he made himself master of Fife. The Duke of Argyle, who commanded the troops in Scotland, set out from Stirling to oppose him; and at Dumblane determined to give him battle, though his forces did not exceed 3,500 men. The rebels having attempted to surround his diminutive army before he could change his position, their center charged his left wing, and were once repulsed; but Glengary, one of their chiefs, waving his bonnet, and crying out, "Revenge!" they made a second charge, with such success, that General Witham fled to Stirling, and gave out that all was lost. Argyle, however, had, in the mean time, attacked with the right wing, and driven the opposing wing of the rebels across the Allen; when he returned to that part of the rebels which had been victorious. Neither army chose to renew the attack, but drew off, each claiming the victory. It was sufficient for Argyle to have interrupted the enemy's progress, since to them delay was defeat. Mar was soon deserted by numbers of his irregular followers; and the castle of Inverness being delivered up by Lord Lovat, who betrayed his trust, the cause of the pretender became desperate in the north. Nor was it more successful in England. The Earl of Derwentwater and Mr Forster took the field on the borders of Scotland, and penetrated as far as Preston, where their army was invested on all sides by the regular forces under General Wells. They at first repulsed the attack of the royal army; but before the assault was renewed, surrendered at discretion, after having in vain attempted to obtain terms of capitulation. Their leaders were brought to London, and led through the streets pinioned and bound; while the common men were confined in Chester and Liverpool. This desperate state of his affairs, did not hinder James from hazarding his person among his friends in Scotland. Upon his arrival at Aberdeen, with six gentlemen in his retinue, he was solemnly proclaimed; and soon after made a public entry into Dundee.

James embarks for France, and the rebellion is suppressed.

After ordering thanksgivings in the churches for his safe arrival, he abandoned the enterprise with the same levity with which it had been undertaken; and he embarked for France, with the Earl of Mar and other adherents. The rebellion was thus suppressed, but the fury of the law was let loose in all its terrors on the devoted prisoners. An act of parliament contrary to the custom of the constitution, was made for trying many of them, not in Lancashire, where they were found in arms, but in London; and the habeas corpus act was suspended. The Earls of Derwentwater, Nithsdale, and Kenmuir, were sentenced to death; Nithsdale, however, escaped in woman's clothes, which were brought to him the night before the execution.

Though the rebellion was thus extinguished, the danger of the state was made a pretext for continuing the parliament, and repealing the act by which they were to be dissolved at the expiration of every third year; an outrage on the constitution at which the people might murmur, but of which they could obtain no redress.

George I. visits Germany.

Domestic concerns being thus adjusted, and the prospect of a dangerous enemy abroad having been also dispelled by the death of Charles the XIIth, at the siege of Frederickstadt, his majesty paid a visit to his German territories, and entered into several alliances with the different powers of Europe; among which the most remarkable was the quadruple alliance. It was agreed between the Emperor, France, England, and Holland, that the Emperor should renounce all pretensions to the crown of Spain, and exchange Sardinia for Sicily with the Duke of Savoy; that the succession for the duchies of Tuscany, Parma, and Placentia, should be settled on the Queen of Spain's eldest son, in case the present possessors should die without issue. This treaty was generally thought unfavourable to the interests of England, as it interrupted the commerce with Spain, and destroyed the balance of power in Italy, by throwing too much into the hands of the Emperor. England, however, fitted out a strong squadron, in order to bring Spain to terms; and as her mediation was refused, it was resolved to support the negotiations by force. Sir George Byng, sailing to Naples with 22 ships of the line, delivered that place from the terrors of a Spanish invasion; but learning that the Spanish fleet had landed 30,000 men in Sicily, he returned westward, and after doubling Cape Faro, came up with 27 sail of the line. The hostile fleet, though so much superior, maintained only a running fight, in which they lost 3 of their ships. This blow produced a remonstrance on the part of Spain, which France and England answered by declaring war against her; but the failure of an enterprise for landing the Pretender, concerted by the Duke of Ormond, and the Spanish minister Alberoni, occasioned by the dispersion of the armament by a storm, off Cape Finisterre,* together with the bad

Naval engagement.

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* Two frigates, however, arrived in Scotland, with the Earls Marischal and Seaforth, the Marquis of Tullibardine, and 300 Spaniards. They were joined by some Highlanders; but on the attack of some regular troops from Inverness, the Highlanders dispersed, the Spaniards threw down their arms, and the rebel leaders escaped to the continent.

1720. success of the Spanish army in Sicily, in a short time obliged the Spaniards to sign the quadruple alliance.

One of the most important domestic events of this reign, was an act, which the English parliament passed, to secure the dependency of that of Ireland. The barons of the exchequer in Ireland, having, by order of the British peers, put a Mr Maurice Annesly in possession of certain lands, in a litigation concerning which, he had appealed from the Irish to the British parliament, a dispute succeeded, which was terminated by a bill passing the English legislature, depriving the Irish lords of the power of final jurisdiction.

1721. About this period, the public suffered severely from one of the most ruinous impostures that ever duped its credulity. Ever since the revolution, government had been accustomed to borrow from mercantile bodies, and among the rest from the South Sea Company. Sir Robert Walpole having conceived a design of lessening the interest paid to those companies from 6 to 5 per cent., the several companies agreed to receive it; and the South Sea Company accordingly, to whom the government owed 10 millions, were satisfied to lend it for L. 500,000 a year. While the public was reaping this obvious advantage, Sir John Blount, a man who had been born a scrivener, proposed, in the name of the South Sea Company, to lessen the national burthen still further, by permitting the South Sea Company to buy up the debts of the other companies. The South Sea Company was to redeem the debts of the nation out of the hands of the private proprietors, who were creditors to the government, on whatever terms they could make; and for the interest of this money, which they had thus redeemed, and taken into their own hands, they would be contented to be allowed, for 6 years, 5 per cent., and then the interest should be reduced to 4 per cent., and be redeemable by parliament. For these purposes, a bill passed both houses, and, as the directors of the South Sea Company could not of themselves alone be supposed to be possessed of money sufficient to buy up these debts of the government, they were empowered to raise it by opening a subscription, and granting annuities to such proprietors as should think proper to exchange their security, namely, the crown for the South Sea Company. The bait held out to adopt the latter security, was the chimerical prospect of having their money turned to great advantage, by a commerce to South America, where it was pretended, that settlements were to be granted to the English by Spain. The director's subscription books were immediately crowded; the delusion spread, and the subscriptions soon sold at a prodigious increase of price. But the multitude, who had paid so dearly for a stock of visionary value, soon awoke from their dreams of opulence, and thousands found themselves involved in ruin. Parliament, however, was determined, as far as they could, to strip the directors of their ill gotten gains. All directors of the company were removed from their seats in the House of Commons, or offices of state; and after punishing the delinquents, the legislature allotted, out of the profits of the South Sea scheme, seven millions to the ancient proprietors, while the remaining capital stock was divided among all the proprietors at the rate of 33*l.* per cent.

Affairs of the South Sea Company.

1722.

Few transactions of much importance occurred during the remainder of this reign. The king, who had emissaries at every court, and a friend in every potentate, was informed by the regent of France, of a new conspiracy, which was formed against him by many characters of power and influence in the nation. The plan, however, of the conspiracy was not divulged to the public. Christopher Layer, a young templar, was the only individual who suffered death: he was convicted of enlisting men for the Pretender. The Duke of Norfolk, the Lords Orrery, North, and Grey, were imprisoned on suspicion, but Bishop Atterbury alone was brought to punishment. He was sent into exile, upon the evidence of intercepted letters in cipher, by a sentence of very questionable justice.

A new war with Spain commenced in 1726, in consequence of the jealousy which the king entertained of the treaty which Spain and the emperor had recently contracted. The apologists for the war pretended, that the balance of Europe was in danger from the coalition of those potentates, and that secret articles had been agreed upon between them for aiding the Pretender, and for wresting Gibraltar from the power of Britain.

But Spain and the emperor loudly denied that their alliance was offensive, and many in the nation believed that a German prince had brought his native prepossessions to the British throne, and that, whatever pretences were made of the balance of Europe being in danger, the war was commenced for the interests of Hanover alone. By the treaty of Hanover, which was framed to counteract the designs of Spain and the emperor, France, Sweden, Denmark, and Prussia, became the allies of Britain. Catharine of Russia, on the other hand, menaced the smaller northern powers, and an English fleet was sent to overawe her in the Baltic. Admiral Hosier was sent to South America to intercept the Spanish galleons, and continued cruising in those seas till his men perished by the unhealthiness of the climate, and his ships were totally ruined by worms. But the Spaniards, who had intelligence of his approach, carried back their treasures to Panama. In a short time, France offered her mediation, and a temporary, though insincere, reconciliation was produced.

In 1727, the king resolved to visit his electoral dominions. Having appointed an administration in his absence, he embarked for Holland, and lay, upon his landing, at the little town of Voet. Two days after he arrived at Delden, apparently in perfect health. But on the morning of the next day, he was suddenly seized with a paralytic stroke, lost the faculty of speech, and was conveyed in a state of lethargic insensibility to Osnabruck. There he expired on the 11th of June, in the 68th year of his age, and the 13th of his reign. George I. was plain and simple in his person and address, though familiar, and even facetious in his hours of relaxation. Endowed with courage and fortitude, considerable prudence, and still more assiduity, he had acquired, before he ascended the throne of Britain, the character of an able politician, a merciful prince, and a circumspect general. If he deviated, in his reign, from the principles of the constitution, it has been generally agreed that it was chiefly because a venal ministry misled him; yet the blame of his sacrificing the peace of England to his quarrels as Elector of Hanover, appears by no means entirely transferable to his minister.

George II. succeeded to his father in the 44th year of his age. His abilities were weaker, but his prejudices, especially his continental partialities, were stronger than those of the late king. The various subsidies of the last reign, which had already swelled the national debt to the amount of fifty-two millions, and the foreign connections which occasioned that expence, were still continued. The ministerial power was still divided among a party who had long maintained an ascendency. Lord Townsend conducted foreign negotiations. The Duke of Newcastle was of consequence from his influence in parliament, though without eloquence or intellectual merit. Lord Chesterfield, with brilliant powers, was contented to act subordinately to men of inferior genius to himself. Sir Robert Walpole was at the head of the treasury. He possessed a species of eloquence, dispassionate, plausible, and easy, though neither elegant nor nervous. He was well acquainted with finance; had been regarded as a martyr to his party under the influence of the Tories; and a dangerous rival of Sunderland himself. He headed that party which was called the court party, (for the distinction of Whigs and Tories was not now entirely applicable to the factions of the state). Their favourite measures were, forming foreign alliances; the subsidizing foreign troops; and alarming the country and House of Commons with the supposed dangers of the state. The country party, on the contrary, deprecated foreign connections, and the maintenance of large armies, as dangerous to public liberty at home, and expensive when subsidized abroad. The leaders of this party were Sir William Wyndham, an energetic speaker; Mr Shippen, calm, intrepid, shrewd, and sarcastic; Mr Hungerford who was insinuating and ironical; and Mr Pitt, who was now rising into eminence, for the fiery vehemence of his genius, and the extent of his knowledge. It required all the phlegmatic fortitude of Walpole to stand the united attacks of these orators. Secure, indeed, in the system of corruption which he had matured in the House of Commons, he was always sure of majorities, but he was frequently baffled in argument by those whom he beat by means of numbers.

The principal subjects of these disputes, during the first pacific years of George II. were the settlement of the civil list;* the mutiny bill; the pension list; the number of the standing army, which Mr Pulteney and the patriotic party wished to be reduced to 12,000; the subsidies to the German princes; and the treaties which were concluded with foreign powers. Of these, the most important were the treaties of Seville and Vienna. Their professed object was to confirm the quadruple alliance; but a particular stipulation was added, for the succession of the Infant of Spain, Don Carlos, to the duchies of Tuscany, Parma, and Placentia. That prince was accordingly, upon the death of the Duke of Parma, by the assistance of an English fleet, put in peaceable possession of Parma and Placentia; and 6000 Spaniards were quartered in the duchy of Tuscany, to secure him the reversion of that kingdom.

The success of the ministry, in obtaining taxes and supplies, was interrupted, in one instance, not by parliament, but by the people themselves. To prevent the frauds practised by the factors in London, who were employed by the American planters in selling their tobacco, Walpole proposed, instead of levying the customs in the usual manner upon tobacco, that what was imported should be lodged in warehouses appointed for that purpose by the officers of the crown, and thence be sold, after paying the duty of fourpence per pound, when the proprietor found a market for it. The proposal raised such a ferment in London, that the avenues to the house of parliament were choaked with enraged multitudes, and the minister began to be in fear of his life. The proposal was carried in the house; but the ministry thought proper to appease the public by dropping the scheme; and the triumph was celebrated with public rejoicings.

The opposition members retire from parliament.

The success of the opposition on this occasion, induced them to attempt a repeal of the septennial, and to restore triennial parliaments: but in this, as in other efforts, they were outnumbered; and, in despair of being able to stem the torrent of corruption, they retired to their seats in the country, leaving the minister and his corrupted followers in undisputed majority in the commons.

The minister being now left, for a while, without an opposition, took an opportunity to render his rivals odious or contemptible, by getting several useful laws passed in their absence; but a fresh opposition soon sprung up, and it was increased by the partizans of the Prince of Wales: a prince that was the darling of the people, and the enemy of a venal ministry. He had lately married the Princess of Saxe-Gotha. During the confinement of the princess in childbed, a message from the king produced a misunderstanding, which at last occasioned his royal highness being forbidden the court. A motion which was made by the prince's friends, to increase his settlement from L. 50,000 to L. 100,000, was rejected in the commons through the influence of Walpole, although it was proved, that, according to his majesty's own regulation, his establishment required L. 63,000 per annum.

At a certain period of civilization and information, the press comes to possess, among a free people, a power equal or superior to any constituted authority. This formidable organ of public sentiments, Walpole had severely felt; but he had successfully used the art of bribery, to attach the herd of ephemeral political writers to his cause: but the theatre, however, threatened to add ridicule to public scrutiny. To silence these, he brought in a bill to limit the number of playhouses, and to subject all dramatic writings, before their appearance, to the inspection of the lord chamberlain. Among the opposers of the bill, the Earl of Chesterfield spoke with becoming zeal in behalf of literary liberty. "If stage-players (said his lordship) exceed the bounds of propriety, they may be punished. To rob a man of the fruits of his wit, is to rob him of his property; and as wit is too often the sole property of its possessor, the injustice becomes a cruelty. If poets and players are to be restrained, let them be tried by their peers, not by a lord chamberlain. A power lodged in his hands to judge without appeal, is a power unknown to the constitution."

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* The civil list was fixed at £800,000: its arrears were afterwards made up by considerable sums that were voted.

The public attention was, however, soon called from domestic to foreign disputes. The unexplained rights of the English to cut logwood in the bay of Campeachy, and the attempts of the individual traders to drive an illicit trade with the Spanish main, had drawn indiscriminate retaliations and injuries from the *guarda costas* of that nation, who plundered the English merchants, and sent the subjects of Britain to be buried in the mines of Potosi. Remonstrances had already been made to no purpose; but the clamours of the merchants were at last listened to by parliament; and a convention between the two crowns was concluded at Prado, importing, that plenipotentiaries should meet at Madrid to regulate the subjects in dispute. Spain was to pay a sum of money, on condition of her claims on Britain being satisfied; and both sides were to discontinue hostile preparations. 1739. But the minister, in demanding the first supply from parliament, was obliged to acknowledge, that the sum stipulated by Spain had not been paid; and, to appease the public now, he began to prepare for war. The French declared themselves bound by treaties to assist Spain: the Dutch declared a neutrality.

War against Spain.

Operations of the British fleets.

Never was war commenced so entirely with the wishes of the nation, and the supplies were granted in parliament without debate. Admiral Vernon sailed to the coast of South America, and, with only six ships, destroyed all the fortifications of Porto Bello, and came away with scarcely the loss of a man. Commodore Anson was to have co-operated with Vernon across the isthmus of Darien, but was detained by the blunders of the ministry; and, coming into the South Seas at the stormy season, his fleet was dispersed, and his crew miserably reduced by the scurvy. He refreshed his men, however, at the delightful island of Juan Fernandez; after which, he sailed along the coast of Chili, and destroyed the rich city of Paita. Traversing next the great Pacific Ocean, his crew were again visited by the dreadful disorder of the sea scurvy. One of his ships becoming leaky, and the number of his hands decreasing, he set her on fire in the middle of the ocean. His fleet being now reduced to one ship, the Centurion, and all the crew in the most deplorable condition, he cast anchor on the deserted island of Tinian, which lies about half way between the American and the Asiatic continents. This island had some years before been peopled by near 30,000 inhabitants; but an epidemical distemper coming among them, destroyed a part, and the rest forsook the place. Nothing, however, could exceed the beauty of the spot. The most romantic imagination cannot form a scene surpassing what Tinian naturally afforded,—green fields, groves, cascades, flowers, and prospects. All that a sea beaten company of mariners could wish was found in abundance,—clear and wholesome water, medicinal herbs, domestic animals, and other necessaries for refitting their shattered vessels. From thence he proceeded to China, and, returning the same way, fell in with the long-expected prize of a Spanish galleon from the Philippine islands, valued at £313,000; which, with other captures, he brought to England, after finishing a voyage of three years, profitable to himself and his crew; and though not immediately conducive to the good or glory of the nation, yet indirectly compensating for the loss of a fine squadron, by the sea-faring experience which he left recorded.

The armament to which Anson was to have acted subordinately, was very unfortunate. It consisted of 29 ships of the line, nearly as many frigates, and of 15,000 soldiers. They arrived before Carthagena, and mastered the strong forts which defended the harbour, but were obliged to use the escalade in attempting those which lay nearer the town. But the guides being unfortunately slain, the forces attempted the strongest places of the forts; their scaling ladders were too short; and they retreated at last, leaving 600 dead behind them. The rainy and sickly season set in soon after this fatal attempt; and the commanders disagreeing among themselves, and unable to retrieve the calamity, re-embarked the troops, and returned.

The discontent which this fatal miscarriage occasioned, fell principally upon the minister; and the activity of the enemy, who took hundreds of merchantmen, while our fleets made but few reprisals, increased the murmurs of the people. In the succeeding parliament, the elections went in favour of the Country Party; and Walpole, after a vain endeavour to gain over the Prince of Wales and his friends to his support, by making him pecuniary offers, beheld his strength expire in the House of Commons, and resigned all his employments. He was succeeded as minister by Lord Carteret. The people rejoiced universally at his fall, expecting from his successor a redress of grievances at home, and a vigorous conduct of the war abroad; but the war continued for some years with indifferent success. Some unsuccessful expeditions were carried on under Admiral Vernon and Commodore Knowles; the issue of these, and the general failure of a naval war, inspired the nation with impatience, to try their fortune and their energies on the other element. The king's attachment to his electoral dominions concurred with this desire; and, as an army was prepared for Flanders, the Spanish war became but a secondary object.

The troubles of Europe were now breaking out afresh, from the disputed succession which succeeded the death of Augustus, King of Poland. Germany and Russia supported the Elector of Saxony, son of the deceased king. France declared for Stanislaus, whom Charles the XII. of Sweden had long ago nominated; and attacked Austria with an army commanded by the aged Marshal Villars, who had now no Marlborough to oppose him. The Duke of Montemar, the Spanish general, was equally victorious in the kingdom of Naples; and the emperor, Charles the VI. had the mortification of seeing himself deprived of the greatest part of Italy, for having attempted to give a king to Poland. These rapid successes of France compelled him to a peace, and the Elector of Saxony was obliged to renounce all right to the crown of Poland. In 1740, the death of the emperor left his daughter beset by enemies, who would have stript her of her dominions; and who, in defiance of the Pragmatic sanction, which settled her father's crown upon her, caused the Elector of Bavaria to be crowned emperor. Britain, Sardinia, and Holland, became her allies in this forlorn situation: a subsidy of £300,000 was granted to her by parliament in 1741, and a subsidy of £500,000 in 1742; and in a short time she triumphed over all her enemies. But whatever sympathy the queen of Hungary's cause might excite in Britain, there were few but the followers of the court who commended the lavishing of British blood and treasure in a cause which only concerned the Elector of Hanover. When the supplies came to be considered in parliament, after information from his majesty, that the British forces in the low countries had been augmented with 16,000 Hanoverians, Lord Chesterfield observed, that the nation, after having exalted the Elector of Hanover from a state of obscurity, to the crown, was condemned to hire the troops of that electorate to fight their own battles; to hire them at a rate which was never demanded before; and to pay levy-money for them, though it was known to all Europe that they were not raised for the present occasion. But the new ministry of Lord Carteret were proof against the force and truth of such remarks, for they were supported by the ex-ministry of Walpole, in return for being screened from the indignation of the public by their successors, the apostates of patriotism.

In less than three years, the Queen of Hungary's affairs wore a prosperous aspect: The French were driven out of Bohemia. Prince Charles of Lorraine defeated the Bavarians at Brannau, and the Croatians penetrated the Tyrol to the gates of Munich. Her rival, the nominal emperor, fled to Franckfort, and agreed to continue neutral during the war, which the French had begun as allies, but now supported as principals. Lord Stair, who commanded the British army, sent to the Queen of Hungary's aid, being anxious to join Prince Charles of Lorraine; pushed forward towards the Mayne, while the French under Marshal Noailles, 60,000 strong, possessed the eastern side of the river; and, by their movements, threatened to cut off all the supplies of the English army. The King of England arriving at this critical period, marched on his troops in order to join some German succours at Hanau; but the French enclosed him as he advanced, at the village of Dettingen, in such a manner that he could not remain without starving, nor fight without disadvantage. The impetuosity of the French extricated our troops from a most dangerous situation; they passed a defile which they should have guarded, gave battle to the British, and were repulsed across the Mayne with the loss of 5000 men. The British monarch atoned for the want of prudence, which had brought his army into a snare, by a signal display of personal spirit and gallantry. The conquerors, however, were obliged to leave their wounded to the care of the enemy, their situation being still too hazardous to be maintained even after a victory.

On the Rhine, and in Italy, the French were more successful; nor did the enterprising and turbulent minister, Tencin, who now headed their councils, despair of replacing the Pretender on the British throne. Preparations were made at Dunkirk for embarking 15,000 troops. The Duke de Rocquefueille, with 20 ships of the line, was to cover their descent, and Count Saxe was to command them; but the appearance of Sir John Norris, with a superior fleet, disconcerted the whole plan; on which the French thought proper to declare war. After this disappointment, the combined fleets of France and Spain ventured out of the harbour of Toulon, and were attacked by the British, who were superior in strength and numbers; but the battle was desultory and indecisive, owing to the mutual animosity of the British admirals: Matthews rushed precipitately into the engagement with his division, but was not seconded by Lestock. On the third day, after a confused combat, Lestock pursued the enemy, but was not seconded by the other admiral. Matthews, however, who, notwithstanding this failure, had alone fought with gallantry, was tried, and dismissed the service, while Lestock was acquitted, who had been principally to blame.

Naval engagement.

In the campaign of 1744, the French army in the Netherlands under Count Saxe amounted to 120,000; while the English, Hanoverian, Dutch, and Austrian allies, hardly mustering above 70,000, could not prevent them from taking Friburg, and in being in a situation early in the next campaign for investing Tournay. Inferior as the allies were, the Duke of Cumberland led them on to attack the French, who held an eminence behind the town of Fontenoy. At two in the morning, the assailants moved on; about nine the British infantry bore down upon the enemy's line, who formed an avenue to receive them, and their artillery continued to perforate this forlorn body till about three in the afternoon, when they were obliged to retreat. The allies lost 12,000 men; but though the French lost nearly an equal number, they fixed their superiority during that campaign, as well as during the remainder of the war. The capture of Tournay was the first fruits of their victory; and, though the Elector of Bavaria, whom they had proclaimed emperor, was now dead, they were too much elated to remit hostilities against the allies.

Battle of Fontenoy.

Amidst the alarming prospect of a foreign invasion, the king's councils were committed to a ministry composed of more popular characters: Lord Carteret, now created Earl Granville, avoided impending danger and disgrace, by a voluntary resignation. The Earl of Harrington succeeded him as secretary of state; the Duke of Bedford was appointed first lord of the admiralty; the Earl of Chesterfield, lord-lieutenant of Ireland; and Mr Lyttleton was made a commissioner of the treasury. About the same time a quadruple alliance was signed at Warsaw between the Queen of Hungary, Britain, Holland, and Poland; and his Polish majesty was subsidised by Britain and the States General with L.150,000 a-year. To balance the bad success which had attend-

Change of ministry.

ed our continental operations, the admirals Rowley and Warren retrieved the honour of the British flag, and several rich prizes were captured at sea. The fortress of Louisburg, in Cape Breton, in North America, surrendered to General Pepperell.

Rebellion in Scotland.

At this critical period of the war, the son of the Pretender resolved to make an effort at recovering the British throne. Since the projected invasion of Count Saxe had miscarried, Charles had lived privately at Graveline, under the name of the Chevalier Douglas; but the report of the immense havoc at Fontenoy, and the belief that Britain had but a handful of regular troops at home, gave hopes to his ambition, and drew him from his retreat. The French court knew of his design; but they supported it only feebly and indirectly. By the help of two French merchants, of Irish extraction, whose names were Walsh and Ruttledge, he obtained a man of war of 60 guns, and a frigate of 16, and some money and arms. Lord Clare, an emigrant Jacobite, raised 100 marines. With these he embarked from Nantz for Scotland, accompanied by a few friends, and with muskets for 2000 men, five or six hundred broad swords, and about £4000 in money, his only means for reducing a great empire. In his course towards the Hebrides, an English man of war engaged his largest ship and disabled her. Charles, however, pursued his way to the Hebrides, in his small vessel, the Doutelle, and put ashore at Erisca, a small island in the western Highlands. From thence he proceeded to Boradale, a situation the most inaccessible in the Hebrides, and surrounded by those chiefs who, in former times, had fought the battles of the Stuarts. The first chief that came to him, at Boradale, was Cameron of Lochiel, the son of the elder Lochiel, to whom the Pretender had entrusted his principal confidence in Scotland. Lochiel, though distinguished by his hereditary energy of character, was too wise not to foresee the consequences of so desperate an enterprise, and waited on the Pretender only to give him his reasons, in person, for refusing to join him. On his way to Charles, the chieftain met with his brother, to whom he imparted the purpose of his journey. Brother, said the younger Cameron, I know you better than you know yourself; if the prince sets eyes on you, you are a lost man. Lochiel, however, proceeded, and the event was as the other had predicted. Lochiel having intreated the prince to remain concealed, at least for a while, till his friends should have consulted; Charles impatiently replied, that in a few days he would erect his standard, and put all to the hazard. Lochiel, said he, who my father has often told me was our firmest friend, may stay at home, and learn from the newspapers the fate of his prince. The reproach of disloyalty touched the Highlander, and swayed him against his better reason. No, said Lochiel, I will share the fate of my prince, and so shall every man over whom nature or fortune has given me any power. Such was the conversation, on the result of which peace or war depended; for if Lochiel had persisted in refusing to take arms, it is certain that the other chiefs would not have joined the standard of rebellion. In a short time Charles was joined by other clans, and, advancing from Lochaber, his army still increasing as he proceeded, he reached Perth, where he is said to have shewn, to one of his friends, the only guinea in the world which he possessed. He levied contributions, however, and proclaimed his father king. Entering Edinburgh, without opposition, he repeated the same ceremony; and learning that Sir John Cope was approaching with the royal forces, he marched out to Prestonpans, about ten miles from the Scottish capital, and put the royal troops to a total rout, with the slaughter of 500 men. This victory gave hopes, more sanguine than solid, to his party. He was joined, at Edinburgh, by the Earl of Kilmarnock, the Lords Elcho, Balmerino, Ogilvie, Pitsligo, and the eldest son of the old Lord Lovat, a traitor, who had fluctuated in his infidelity between the houses of Stuart and Hanover; and who now secretly aided the Pretender, while he openly professed his loyalty to government. While Charles was unwisely delaying at Edinburgh, the government was active in preparation; and the people, though unaccustomed to arms, and terrified by the suddenness of the irruption, voluntarily embodied, and trained themselves to arms. Six thousand Dutch troops, in the mean time, came northward, under General Wade; and the Duke of Cumberland arriving from Flanders, was followed by a detachment of dragoons and infantry.

The Pretender lands in the Hebrides July 27.

Charles, at last, resolved upon an irruption into England. He crossed the western border; took the town of Carlisle; and, at Manchester, was joined by 200 men. On the 4th of December, the rebels reached Derby. They advanced within 100 miles of the capital, which was filled with dismay at his approach; and had they reached it immediately, the consequences, though they could not have been fatal to the reigning family, might have been productive of temporary confusion. But Charles, who was in fact, only the nominal leader of his independent chieftains, was overruled in his designs, and it was resolved that his army should retreat into Scotland. They effected their retreat without any loss, and without being overtaken by any considerable body of the Duke of Cumberland's army, except at Clifton, where they exhibited the uncommon spectacle of infantry not awaiting the shock of dragoons, but rushing up to attack them, sword in hand, and driving them from their ground. Continuing to retire northward, they left a garrison of 400 behind them, at Carlisle, who, soon after, surrendered prisoners at discretion. On their return to Scotland, they levied a heavy contribution on the opulent city of Glasgow; and proceeding from thence to Stirling, took possession of the town, but continued an ineffectual siege of the castle. To relieve this place, General Hawley assembled a number of forces at Stirling, and gave battle to the Highlanders, who came, on the 17th of January 1746, in full spirits to attack him. They threw the troops, under Hawley, into disorder at the first volley; rushed forward with their claymores, and mixing his cavalry and infantry, in one rout, put them to flight, and took possession of the tents and artillery of the king's forces.

But the victory of Falkirk was the last of Charles's triumphs. The Duke of Cumberland had put himself at the head of 14,000 men, who were assembled at Edinburgh, and advanced northward as the young adventurer retired. When he had passed Aberdeen, where he was joined by the Duke of Gordon and other loyal Scotch nobility, he continued his course across the Spey, till he learnt that the rebels were advancing from Inverness, nine miles distant, to give him battle on the plain of Culloden. Their numbers amounted to 8000, who were drawn out to receive him. At one in the afternoon of the 15th of April the cannonading commenced; the rebel artillery was miserably served, and did no execution; but the duke's artillery made lanes among the Highlanders. While the cannonade continued, the duke observing a wall upon the right of the Highlanders, ordered a body of his men to advance, and pull it down. The order was obeyed, and the flank of the rebels immediately became uncovered. The front of the rebel Highlanders being at the same time exposed to a dreadful fire of artillery, the men, by instinctive valour, advanced to the attack sword in hand, broke through two regiments, Burrel's and Munro's, and pressed on to the second line of the royal army. In this situation, they were calmly expected by the second line of the royal army in front, and by Wolfe's regiment, which had broken down the wall, on their flank. A few, and but a few, of the assailants in this quarter escaped. The bravest who did not fall by the fire, perished in conflict with the English bayonets. Lochiel was advancing at the head of a small troop who survived, and was charging the English ranks, when he fell by a discharge of grape-shot, which wounded him in the ancles, while he was in the act of drawing his sword. He was carried off by his two brothers, between whom he had advanced. Macdonald of Keppoch was rushing on in the same manner, when he received a wound which brought him to the ground: he was conjured by a friend not to throw his life away, but to retreat, and rejoin his regiment. He desired his friend to provide for his own safety; and, going on, received another shot, by which he fell to rise no more.

Most of the chiefs who commanded the five Highland regiments who advanced to the charge were killed, and almost every man in the front rank of each regiment. The rebel regiments on the left, seeing the fate of their countrymen, did not advance to close combat; but only so near as to exchange a general discharge with the right wing of the duke's army; after which, they answered the fire of some of the dragoons who pursued them; and then dividing into separate bodies of different sizes, were either cut to pieces, or retreated, according to their numbers, or that of their immediate pursuers. In less than thirty minutes the battle was converted into a general route; and orders being issued to give no quarter, vast numbers were slain in the pursuit. The pretender escaped with great difficulty from the field of battle; and after wandering for the space of many months a solitary fugitive among the wilds of Scotland, he found means to embark on board a small vessel, which conveyed him to Morlaix in Bretagne. Thus ended the last effort of the Stuart family, to reascend that throne which had been forfeited by the most egregious folly, and the most flagitious attempts. The executions which ensued on the suppression, seemed much more numerous than the necessity of the case required. The Lords Balmerino, Lovat, and Kilmarnock, suffered the sentence of decapitation on Tower-hill, as did also the Earl of Derwentwater, without any form of trial, being arraigned on the sentence passed against him in 1716. The Earl of Cromarty, only, received a pardon. Both houses of parliament presented addresses of congratulation to his Majesty, and thanks to his royal highness the Duke of Cumberland, who now became the idol of the nation, and was held every where up as the saviour of the Protestant interest.

An important act of parliament was passed immediately after the suppression of the rebellion, by which the heritable jurisdictions of the Highland chieftains were abolished. A law was also passed, forbidding the Highlanders to wear the garb by which they were distinguished. The policy of emancipating the Highland vassals cannot be doubted; but the conquest of their affections remained still to be made. Under the wise administration of Chatham, a conciliatory system was adopted, and their favourite national garb was restored. It was not until the latter period, that the nation reaped the full benefit of the bravery and loyalty of a true, simple, and energetic Celtic race of mountaineers.

Proceedings of the British fleet.

About the same time, the English made an expedition to the coast of France, in order to attack Port L'Orient, from which they came off with neither honour nor advantage. The fleet under Admiral Lestock, with six battalions of regular forces on board, arrived on the 20th of September, in Quimperlay Bay, ten miles distant from the city, which was immediately summoned to surrender. In the first emotions of surprise and consternation, a capitulation was agreed to, on condition that the magazines of the company, on the payment of L.40,000, should remain untouched, and the inhabitants be protected from pillage. These terms the British commander haughtily rejected, and the inhabitants, driven to despair, prepared to defend themselves. The invaders were destitute of artillery and implements for a siege, and they played ineffectually with a single battery upon the town. At length the troops in the neighbourhood, and the provincial militia, collecting in force, compelled the general to reimbark, and return to Portsmouth.

Successes of the French in Flanders.
1747.

The French, at the same time, gained an important victory at Rocoux, in Flanders, over the allies. The Dutch, who had beheld the progress of the French arms in the Netherlands with terror and apprehension, had been at last driven to declare against their most formidable enemy; and by a tumultuous sedition, similar to that which, in the last century, had saved their commonwealth, the people were excited to depose their magistrates, and to confide the supreme power over the army and navy to the Prince of Orange. But, however spirited and wise their resistance to France might have been, they were in the present conflict necessarily, from being the weakest, the greatest sufferers. A victory gained over the allies at La Feldt filled them with distrust of their own generals, and the taking of Bergen-op-Zoom drove them to despair. These disasters, it is

Naval engagements.

true, were balanced in some degree by the losses of the French in Italy, where their general, the brother of the Marquis de Belleisle, was slain, and his whole army put to the route in attempting to penetrate into Piedmont. Nor were the naval successes of Britain discontinued. In April 1747, a squadron sailed from Brest for America, commanded by Admiral La Jonquiere, who were encountered by a superior fleet under the English Admirals, Anson and Warren. Six ships of the French line struck their colours, and the greater part of their convoy and frigates were taken. In the month of October, Admiral Hawke, with a superior force, fell in with nine French line of battle ships, seven of which he took, after an obstinate engagement.

Prospect of peace.

Treaty of Aix-la-Chapelle, 1748.

The variety of success served to make all the powers at war heartily desirous of peace. The king of France was sensible that the moment of success was the most advantageous opportunity of proposing terms; and even expressed his desire of general tranquillity to Sir John Ligonier, who was made prisoner at the battle of La Feldt. In the new parliament, which met at the end of the year, his Britannic Majesty announced that a congress would be speedily opened at Aix-la-Chapelle, for concerting the means of a general pacification. As the event, however, was uncertain, the subsidies and supplies of parliament were renewed, and an additional subsidy was granted to the Empress of Russia, whom England had now to class with the Empress Queen of Hungary, the Kings of Denmark, Sweden, Poland, and Sardinia, and a multitude of Germanic sovereigns in her band of mercenaries. But previous to the termination of the session (May 1748), the king informed the two houses, that the preliminaries of peace were actually signed, and that the basis of the accommodation was a general restitution of conquests. The treaty of Aix-la-Chapelle must undoubtedly, upon the whole, be considered as favourable to the allies. France, for the sacrifice of all her conquests, required no other compensations than the cession of the Duchy of Parma, with its appendages, to the infant Don Philip, territories of which that prince was already in possession. By this treaty, England resigned Cape Breton, to obtain the restitution of Madras. With Spain, England had little occasion to negotiate. In a war of nine years, nothing had been gained or lost, but Portobello, which had been immediately evacuated. The original cause of the war seemed in the course of it to be entirely forgotten; and at the conclusion of the peace, not a syllable was mentioned respecting the pretended right of search, which had formerly occasioned such loud and indignant clamours. The settlement of the boundaries of the French and British empires in America was referred to the decision of commissioners. France retained no mark of superiority in this treaty with relation to England, excepting the restitution of hostages to reside in France, till the reciprocal retention of conquests should be actually made, and the Earls of Sussex and Cathcart were nominated for that purpose. This afforded the patriots a pretence to exclaim against the peace as disgraceful to the nation; but the nation, which had reason to be wearied with the expences and disasters of the war, were well satisfied with the terms of the peace, and it was celebrated with universal rejoicings. A profound tranquillity in domestic affairs succeeded the peace of Aix-la-Chapelle, till the death of Mr Pelham in 1754, in the meridian of his life, reputation, and usefulness. He lived and died esteemed and lamented, both by the sovereign and the nation. Mr Legge, a man of honour and capacity, succeeded him as chancellor of the exchequer. The seals being consigned to Sir Thomas Robinson, formerly ambassador at the court of Vienna, a minister of very moderate political attainments, the post of first lord of the treasury was occupied by the Duke of Newcastle. But it soon appeared how unequal were the talents of this nobleman to sit at the helm of affairs, when deprived of the assistance of Pelham. If we seek for the origin of the war, which, at the distance of some years from the peace of Aix-la-Chapelle, was created between France and England, we shall find it kindling up at one and the same time in Europe, Asia, and America. By the treaty of Utrecht, the English had been acknowledged as the rightful possessors of Nova Scotia, in North America. But the province of Nova Scotia being ceded to England according to the ancient limits of that territory, fruitless and endless altercations arose as to the import of this expression, between the commissaries of the two nations, to whom the right of fixing the boundaries of the royal empire was assigned; the English claiming the whole territory as far as the southern bank of the river St Lawrence, and the French admitting their right only to the peninsula of Acadie.

Another source of dispute, also, sprang up in the same quarter of the world. The French, pretending to have first discovered the mouth of the river Missisippi, claimed the whole country towards New Mexico, on the east, quite to the Apalachian mountains on the west. On this pretence, a systematic and artfully contrived plan was formed to connect these widely distant establishments, by the gradual erection of a chain of fortresses, from the lakes Erie and Ontario, along and beyond the Ohio, to the mouth of the Mississippi. In order to assert their claims, as they found many English who had settled beyond these mountains, they dispossessed them of their new settlements, and established forts to command the adjacent country. In this dispute, the native Indians, both from interest and partiality, sided almost universally with the French.

Negotiations, mutual accusations, and partial hostilities, between the two powers, for some time preceded an open declaration of war. At last more important operations commenced. In the year 1755, General Braddock sailed from Cork; and, on his arrival in Virginia, took the command of the forces destined to act against the French on the Ohio. Braddock was courageous, but obstinate, and acquainted with regular war; but attached to the pedantry of discipline; and so deficient in sense, as to imagine the tactics of Europe strictly practicable among the swamps and forests of America. He treated with disdain the advice of the provincial officers, who best knew the enemy he had to engage; and took no precaution against the stratagems which he was warned to expect. Having advanced, in fearless security, to less than ten miles of Fort du Quesne, without reconnoitring, he was saluted, in the midst of a pathless swamp, by a fire in his front and flank, from a concealed enemy. Too high spirited to think of retreating, he gave directions to the few brave men who kept beside him to form and rally, and advance according to the regular rules of war. In this condition he remained, giving orders with great composure, while his officers fell thick around him, till he fell dead by the shot of a musket. The main body of his troops had fled, and their retreat was covered by the provincials, under Major Washington, whom he had so much despised. All the artillery, ammunition, and baggage of the army, were left to the enemy, and seven hundred men were lost; the rest retreated to Philadelphia.

On the death of Braddock, the chief command devolved upon General Shirley, who formed a plan for the reduction of the important fortresses of Crown Point and Niagara, erected by the French on the banks of the lakes Champlain and Ontario. The troops, destined for this service, arrived at the place of rendezvous late in the summer, and were, soon after the commencement of their march, attacked in their camp by Baron Dieskau, the French commander, who was repulsed with great loss. General Johnson, however, found himself, after this bloody encounter, too much weakened to proceed in his expedition, and retreated to Albany. Thither, also, General Shirley returned; the purposed enterprise against Niagara being deferred till the next campaign.

While the operations of the English were thus languid and unsuccessful, the French, under General Montcalm, captured Oswego, though strongly garrisoned and plentifully provided. In the succeeding year, 1757, they laid siege to the important post of Fort William Henry, and captured it in six days. By this conquest the French obtained the command of the extensive and magnificent chain of lakes, which connects the rivers St Lawrence and Mississippi. And thus disgracefully terminated the third campaign of the American war, in which the French, with a very inferior force, had maintained an uniform superiority; and, in the course of which, no advantage had been gained by the English, except the expulsion of the French from Nova Scotia, by the vigorous exertions of Colonel Moncton, assisted by a body of the provincials, raised by the Massachusset assembly.

Some atonement for these disasters in America, was found in the captures which the English made at sea. Letters of reprisal had been issued by the English court, as early as 1755, before a regular declaration of war, and 300 merchantmen, for the most part unsuspicious of danger, had fallen into their hands. The French complained of this breach of public honour, with some reason; not that their own hostile intentions were to be doubted, but because the ceremony of declaring war was easy, and should have been observed. The truth was, that British ministers fluctuated between peace and war. An opposition had arisen, which weakened and distracted them—the opposition of Mr Pitt and Mr Legge to the measures of the court. Mr Pitt declared that the whole system and scheme of politics was absurd. Already alliances had been made, by which one half of the continent was subsidised, for the sole purpose of defending Hanover. The Prince of Hesse Cassel was to hold in readiness 12,000 men for that purpose; and Russia was paid to maintain 55,000 horse and foot for the same object. But, by adopting Prussia as an ally, the aid of Russia was virtually lost to Britain. The Empress Elizabeth sided with France, when she saw his Britannic majesty sign a treaty with Frederick. Mr Pitt and Mr Legge deprecated this whole system of continental connections; a system which, the former statesman declared, would, in a short time, cost us more than the fee simple of the electorate was worth; and he ardently wished to break those fetters which chained us, like Prometheus, to that barren rock.

Change in administration.

These declarations were immediately followed by the dismission of Mr Pitt and Mr Legge from their respective employments. Mr Henry Fox, after these changes, accepted of the seals. The administration was new modelled in other respects; but, though led by the talents of Fox, it was still divided and unpopular. The first efforts of the cabinet were directed to ward off a blow which France threatened when the war commenced, namely, the invasion of the island; and in these their conduct neither gave confidence, nor gained popularity. Instead of adopting a broad and patriotic plan of defence, that of arming the people to defend themselves, they grasped on all hands for mercenary aid, and 10,000 Hanoverians were brought over to defend ten million of Englishmen. While the nation and ministry were thus fearfully watching the preparations at Dunkirk and Brest, a formidable fleet was equipped at Toulon, which at last sailed to attack Minorca. When its destination was notorious, a squadron of ten ships of the line was dispatched under Admiral Byng, with orders to relieve Minorca, or, at any rate, to throw a body of troops into the garrison. Byng, with a fleet which, though inferior to the French, would yet have been led to battle, and probably to victory, by a spirited commander, had a partial engagement with, and suffered them to escape. He returned home without accomplishing the relief of Minorca, was brought to trial, and perished by the sentence of a court-martial. By one half of the nation his fate was regarded as a terrible, but necessary example; by the other half he was considered, as he styles himself, not without appearance of reason, a victim, destined to divert the indignation and resentment of an injured and deluded people. Notwithstanding the sacrifice of this victim, the nation exhibited symptoms of the highest dissatisfaction at the conduct of the administration, under whose guidance nothing but disaster had occurred. The Duke of Newcastle and Mr Fox, finding the tide of popularity set strongly against them, determined, by a timely resignation, to avoid a compulsive dismission. In November 1756, Mr Pitt was appointed principal secretary of state, and Mr Legge reinstated in his post of chancellor of the exchequer. Yet, with all the popularity of the principal characters of this ministry, it soon became impossible to conceal, that the higher parts of it were in a convul-

Threats of an invasion.

Admiral Byng shot.

Change of administration.
November.

Mr Pitt again dismissed;

but soon after recalled.

sive state of quarrel with its lower and baser ingredients,—the subservient creatures of the court, who had been allowed to remain in it. The favourite project of the king, for strengthening the army in Germany with large reinforcements from England, was not agreeable to the patriotic ministers Pitt and Legge. His majesty, irritated by their opposition, at length resolved upon an effort to relieve himself from their controul; and in April 1757, they were suddenly dismissed from their offices, the chancellorship of the exchequer being consigned, *pro tempore*, to the chief justice of England. Mr Fox again took the lead in affairs; but the alarm of the nation at the dismission of the popular ministers was lively and undisguised. Mr Fox, perceiving it impossible to stem the torrent, wisely consulted the monarch to yield to the wishes of the people. And in June Mr Pitt resumed the seals of secretary of state; Mr Legge and the Duke of Newcastle their former stations at the board of treasury; Lord Anson was placed at the head of the admiralty; and Mr Fox himself, acceding to the new order of things, was gratified with the lucrative office of paymaster-general of the army.

Affairs in Germany.

The recal of Mr Pitt to the helm of affairs, produced, in a few years, the most successful efforts of national vigour that ever were made; but the tide of success did not immediately change. . An ineffectual attempt was made upon Rochefort by a naval, land, and marine force, under Sir Edward Hawke and Sir John Mordaunt, in which the commanders had no other success than that of reducing the little island of Aix, after which they returned immediately to England. But the indignation of the country could attach no blame to the administration that planned this enterprize; the whole fell upon its immediate conductors. In Germany, affairs were not more fortunate. There, the Duke of Cumberland, at the head of 50,000 confederates, was opposed to the Mareschal d'Etrees, the French commander, whom he suffered to cross the Weser without disputing the passage, and before whose forces he ordered his own to retreat, before the battle of Hastenback was irretrievably lost. Retreating after this engagement, the duke was enclosed between the German Sea, the Elbe, and the Weser; and in September was obliged, at Cloister-Seven, to sign the disgraceful capitulation known by that name, by which his Hessians, Hanoverians, and Brunswickers, to the number of 40,000, were obliged to disarm and disband.

Changes among the allied powers.

By this time the King of Britain had thought proper to drop the connection of Russia to obtain that of Prussia. From this choice a new combination took place among the European powers, quite opposite to the former state of things, and the forces of the different powers were thus drawn out: Britain opposed France in America, Asia, and on the ocean. France attacked Hanover, which the King of Prussia undertook to protect, while Britain furnished troops and money to second his operations. Austria had fixed her aims on the dominions of Prussia, and drew the Elector of Saxony into the same designs. In these views the Austrians were seconded by France, Sweden, and Russia, the last of which powers had hopes of acquiring a settlement in the west of Europe.

The war, however, soon took a brighter turn. In America, General Amherst concerted with General Abercrombie a spirited and judicious plan of operations for the campaign of 1758. Conveyed by the fleet of Admiral Boscawen, he took Louisburg, with the whole island of Cape Breton, and a fleet of six French ships that lay anchored in the harbour. General Abercrombie, who undertook to reduce all the enemy's forts on the lakes George and Champlain, was at first dispirited by a repulse which he sustained at Ticonderago; but detachments of his army, under Colonel Bradstrict and General Forbes, separately, reduced the forts Frontenac and Du Quesne; and in October of the same year peace was established, by a formal treaty, between Great Britain and the Indians inhabiting the rich and fertile plains between the lakes and the Ohio. In the succeeding year, Ticonderago itself surrendered, and fort Niagara capitulated to General Johnson.

But by far the most difficult part of General Amherst's plan, the reduction of Quebec, was intrusted to General Wolfe. In the month of June 1759, the armament, destined for the invasion of Canada, arrived at the island of Orleans, formed by the branches of the river St Lawrence, and extending to the bason of Quebec. On the left of this river were posted 10,000 French, under General Montcalm, who repulsed the British in an attempt to pass from the island of Orleans; but the disappointment, though it sunk deep in the haughty spirit of the British commander, did not prevent him from trying the only effort that remained to be tried, one transcendently bold and admirably executed. To deceive the enemy, he moved up the river several leagues beyond the spot fixed on for landing; but, during the night, he fell down with the stream, in order to protect the disembarking of the troops, which was happily accomplished in silence and secrecy. The precipitous heights of Abraham were next ascended; and, with infinite labour and difficulty, the troops sustaining themselves by the rugged projection of the rocks, and by boughs of trees and plants, which sprang from its clefts, gained the summit, and formed in order of battle. Montcalm immediately hastened with his army, from his camp at Montmorenci, and gave battle to the British to save the town. Wolfe, advancing at the head of the grenadiers, was at first slightly wounded in the wrist, by a ball from one of the enemy's marksmen; he continued, however, to give orders, inattentive to the wound, with a handkerchief wrapt round his wrist, till a second shot pierced his breast. Expiring in the arms of victory, he had but time to learn that the enemy fled. The generals Moncton and Townsend continued the fight, after the fatal wound of their commander, with unabated ardour. The death of Montcalm, the French commander, who also received a mortal wound, was fatal to the enemy. They gave way on all sides. The city of Quebec, though provided with the means of defence, surrendered in consternation, and the shattered remains of the French army retreated to Montreal. The French made a vigorous effort, the following season, to recover Quebec; but were entirely repulsed by the resolute defence of the garrison, and the appearance of Lord Colville's fleet. The reduction of all Canada soon followed that of its capital, the most important acquisition of territory ever made by the British arms. An almost uninterrupted prosperity, for some years, attended the operations of England. Fort Louis, on the river Senegal, surrendered without effusion of blood, to a small squadron under Captain Marsh. Goree, on the south of the same river, surrendered to Admiral Keppel; and Gaudaloupe was taken by Commodore More and General Hopson. Our attempts upon the French coast were, as usual, unfortunate. Cherbourg was, indeed, taken by Commodore Howe, who destroyed the harbour and bason of that place; but the same armament having sailed back from England, and disembarked the land troops to the westward of St Maloes, General Bligh, their commander, was alarmed, in the midst of his march into the open country, by intelligence that the governor of Bretagne was advancing, to cut off his retreat, at the head of a powerful army. The English hurried back to the bay at St Cas, where their fleet lay at anchor, but could not escape to their ships, till their rear guard, of 1500, were slaughtered almost to a man. It can scarcely be presumption to impeach the policy of these expeditions to the enemy's coast, which so uniformly terminate in disaster, although they were sanctioned by the recommendation of the elder Pitt himself, who used to boast that he could, at any time, singe a few yards of the French coast. Such attempts, when we consider their expense, their vanity, and their bloodshed, may be allowed to have been compared, with much more propriety, to the folly of breaking windows with guineas. The British admirals asserted their country's honour more effectually. Boscawen intercepted the fleet of De la Clue, off Cape Lagos, and, after a fierce conflict, captured five of the enemy's capital ships. A second victory was obtained off Quiberon, by Admiral Hawke, in a manner still more creditable to British seamanship. Undismayed by the rocks, shoals, and quicksands, of a shore, to which the French retired, Hawke pursued them, in the midst of the tempestuous month of November, and gave them battle. Two of their capital ships were sunk during the action. Another struck her colours, but no boat could be sent to take possession of her; and three others were stranded or destroyed.

Our arms, in the East Indies, were distinguished by splendid achievements. The war, in that remote quarter, began by each power siding with two contending native princes; and thus, by degrees, becoming principals in the dispute. The viceroy of Bengal, declaring against the English, laid siege to Calcutta, a fort, which was in no situation to repel the attack even of barbarians. It was taken by assault, and a part of the garrison, to the number of 146 persons, were crowded into a small prison, called the black hole of Calcutta, and perished in circumstances horrible to be related. General Clive, however, soon avenged this dreadful transaction, and retrieved the affairs of our eastern dominions. Aided by a fleet under Admiral Watson, he first subdued a piratical Prince Angria, who had annoyed the company's settlements, in the neighbourhood of Bombay; then marching into Bengal, defeated the forces of the reigning Subah with a handful of men, assisted his subjects, in dethroning him, and placed another attached to the English interests in his stead. The affairs of the company being thus triumphantly re-established in the northern provinces, the attention of their council and commanders was called to the coast of Coromandel. General Lally, an active military character in the service of France, laid siege to Madras, in 1758; but he was driven from thence, by the arrival of Captain Kempenfelt, with reinforcements to the garrison, and retreated precipitately to Arcot. A year after this event, Lally was completely defeated, by General Coote, in the Carnatic, and was, at last, blockaded by sea and land in Pondicherry. The fortunate capture of this proud and opulent capital of the French Indian dominions, completed our triumph in the east.

Proceedings on the continent.

The disgraceful convention of Closter Seven, had spread dissatisfaction through England, but as soon as it was known that Prince Ferdinand of Brunswick had put himself at the head of the Hanoverian army, the most sanguine expectations were excited, and the most liberal supplies were granted by parliament. The renewed energy, in the conduct of the German war, as far as England was concerned, was indeed no less owing to the character of the minister than of the people. The interest of the nation was deeply excited by the dangers, the difficulties, and the romantic exploits of Frederick of Prussia. Mr Pitt, himself, who had risen to popularity by declaiming against German subsidies, whether smitten by this contagious sympathy, or anxious to finish the war by vigorous measures, in a quarter where he saw that his sovereign's inclination was unchangeably bent on hostilities, acquiesced in the alliances, and in the warlike measures which he had formerly so much condemned. A body of British forces were sent over to join Prince Ferdinand, under the Duke of Marlborough. The command of these devolved, by the death of Marlborough, on Lord George Sackville, after a few inconsiderable successes of the allies at Crevelt. In the glorious and decisive battle of Minden, the British cavalry were brought forward, by Sackville, too late in the action to be of the smallest service; but the English infantry, commanded by Waldegrave and Kingsley, bore the brunt and chief credit of the day. They not only sustained, with the utmost intrepidity, the repeated attacks of the French, but charged them in their turn, and totally routed the Gendarmerie carabineers, and the choicest veterans of the French. After this victory, it was expected that another reinforcement would totally turn the scale of fortune, in favour of the allies, but the reinforcement arrived, and no advantage accrued. The English, at last, began to open their eyes to their own interest, and to see that in Germany they were waging unequal war, and assuming new loads of taxes, for conquests which they could neither preserve nor enjoy. Amidst the events which ultimately contributed to this change of sentiment, George II. died suddenly on the 20th of October 1760. He had risen at his usual hour, and ex-

Battle of Minden. Aug. 1759.

Death of George II. 20th October 1760.

pressed an intention, as the weather was fine, of walking out. In a few minutes, being left alone, he was heard to fall upon the floor; when his attendants, who were brought into the room by the noise of his fall, lifted him into bed, he desired that the Princess Amelia might be sent for; but, before her arrival, he expired, in the 77th year of his age, and in the 33d of his reign. In his private character, though his temper was violent, his principles were good, and his conduct frugal, plain, and sincere. His public virtue cannot entirely be sullied by the charge of a predilection for his native country, since that passion itself was a partial virtue. Without having the merit of extending patronage, he saw the arts flourish under his reign; and, with an ordinary capacity, he enjoyed the longest and most glorious of all English reigns.

Accession of George III. 1760.

All historians concur in representing the period of his present majesty's accession, as singularly auspicious. The war was conducted successfully, by a most popular administration. The natural partiality of subjects, for a young sovereign, was increased by the purity of his morals, and the singular graciousness of his manners. The speech delivered from the throne, at the first meeting of parliament, was well calculated to support and increase this popularity. "Born and bred a Briton," said the young monarch, "I hold the civil and religious rights of my people equally dear to me, with the greatest prerogatives of my crown." It was strongly recommended, to parliament, to support our great ally the king of Prussia, and the liberality of parliament was evinced in voting more than 19 millions, (including a subsidy of £650,000 for his Prussian Majesty,) for the support of 50,000 land forces, and 70,000 seamen.* The civil list was settled at £800,000 per annum, a sum now charged on the aggregate fund, in lieu of the hereditary and other specific revenues, which had been assigned to the late king. A most popular act distinguished this session, which passed at the immediate recommendation of the throne. Hitherto the commissions of the judges expired, according to law, with the demise of the sovereign; and though, in fact, no instance had occurred, since the Revolution, in which the new successor had exerted his privilege of changing them, yet it was thought proper to complete their independence, by extending their commissions during good behaviour.

November.

Mar. 1761.

An event which took place the very day on which parliament was dissolved, seemed to bode ill to that union and good harmony which had been so strongly recommended in his Majesty's speech, and to verify the fears of those who had predicted the growth of Tory principles in the new monarch, from his education under the Earl of Bute. The popular and patriotic minister Legge, a man of whom Sir Robert Walpole was accustomed to say emphatically, that he never knew a man who had less "*rubbish about him*," was dismissed from the chancellorship of the exchequer, and Sir Francis Dashwood, a well known *Tory*, was put in his place. At the same time, the compliant Lord Holdernesse, who had intimated to Lord Bute at the accession, that he was ready at a moment's notice to throw up his office, in a pretended quarrel with the Whigs, now kept his promise, and retired in "*seeming anger*," but with a pension of L.3000 *per annum*. Lord Bute was appointed secretary of state, and Charles Jenkinson, afterwards Lord Liverpool, was made his confidential secretary.

Changes in the ministry.

His majesty's union with the Princess Charlotte of Mecklenburgh Strelitz, together with their coronation, was joyfully celebrated throughout the kingdom. In spite of the late changes in the ministry, war was ably supported. Though the gallant Frederick was hardly pressed, Prince Ferdinand, with the allies, signalized the summer campaign of 1761, by defeating the French at Kirch Derken, with the loss of 5000 men. The island of Belleisle surrendered to General Hodgson and Commodore Keppel, after its capital had been taken by storm. Dominica was reduced in the West Indies, and Pondicherry in the East. Yet the nation was not so dazzled by the splendour of victory, as to be blind to the expences of the war. A negotiation preferred by France was now continued, and promised a fortunate issue, when it was suddenly interrupted by an event, which brought a new enemy to act against us. Spain, deeply meditating the family compact, betrayed her designs, by what was considered as an impertinent interference between the belligerent powers. This necessarily roused Mr Pitt, who, seeing at once the whole of the project, proposed to declare war against that kingdom. But finding himself unsupported, he somewhat haughtily (perhaps, however, justly) declared, that he would take no part in councils which he was not permitted to govern. His resignation immediately followed. His majesty accepted it with expressions of regret, and, as a just reward well due to his services, settled on him a pension of L.3000 a year. He was succeeded by the Earl of Egremont. Mr Pitt's vigilance as a minister was soon evinced by the open avowal of that family compact, which his antagonists had derided him for suspecting. England was necessarily drawn into a war with Spain; and Portugal, as the ally of England, was invaded, and nearly given up to conquest. But the influence of Mr Pitt's plans outlived his continuance in office. Martinique surrendered to our arms, and Spain in a very few months lost Havannah, Manilla, and all the Philippine Islands. The inhabitants of Manilla saved their property, by promising a ransom which was never paid. In the mean time, the bravery of the British troops, and the conduct of the Count La Lippe Buckeburgh, who commanded them, changed the fortune of the war in Portugal, and repelled the Spanish invader. In Germany, Prince Ferdinand, ably seconded by the Marquis of Grandby, gave a signal defeat to the French at Grabenstein, and the enemy was driven out of South Cassel.

The career of victory was stopt by a still more desirable event. A negotiation for peace was again set on foot. The Duke of Bedford was sent over to

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* It is particulary worthy of notice, that in this session, 176th, £200,000 were voted, in consequence of a message from his Majesty to the several provinces of America, expressly as a compensation to them for their extraordinary expenses, incurred by their vigorous exertions during the war.

Paris, and the Duke de Nivernois came to London. A definitive treaty was signed at Paris on the 10th of February 1763. The French gave up all Canada, that part of Louisiana east of the Mississippi, Cape Breton, Senegal, the islands of Grenada, Dominica, St Vincent's, and Tobago. Spain ceded Minorca, East and West Florida, and all her possessions east or south east of the Mississippi, renouncing her pretensions to the Newfoundland fishery, and confirming to Britain the right of cutting logwood in the Bay of Honduras. France renounced in the East Indies all acquisitions made on the Coromandel coast, since the year 1749. Portugal was reinstated in all her dominions: the French were to withdraw from the Hanoverian, Hessian, and Prussian territories. In return for these cessions, Britain gave up to France, Belleisle, Goree, Gaudaloupe, Martinique, St Lucia and Pondicherry, and Chardanagore, in the East Indies; recognised her right to fish on the banks of Newfoundland, and ceded the small islets of St Pierre and Miquelon. To Spain we restored Havannah, the Manillas, and our other conquests. A violent outcry was occasioned by the terms of the peace. Chatham himself raised his voice with indignation against it; but we ought not to be dazzled by the authority of patriotic names. The terms were at least fair, honourable, and advantageous. In a single year's continuance of the war, the country might have spent ten times the value of any acquisition which she gave up, by moderating her views.

The conclusion of the war was followed by the downfal of the minister. This was partly accomplished by the power and genius of Pitt, and the Whig interest in parliament; but still more by the popular outcry which was raised against the minister, and by the virulent publications which issued from the press. At the head of those popular writers was John Wilkes, the member of parliament for Aylesbury, and editor of a paper called the North Briton, remarkable for its invectives against the ministry, and its scurrility against the Scotch nation. To the flame of popular hatred the minister at last yielded, and was succeeded by Mr George Grenville, who began his ministerial career by prosecuting Wilkes. This demagogue had not scrupled, in one of the numbers of the North Briton, to accuse his majesty directly of falsehood. The king's messenger, by virtue of a general warrant, entered Mr Wilkes' house, and apprehended him. After being examined before the secretaries of state, he was committed to the Tower, and his papers were seized and sealed up. A few days after, he was brought to Westminster-hall by habeas corpus, and released by Lord Chief-Justice Pratt, in consideration of his being a member of parliament. The parliament ordered the seditious paper to be burnt by the hands of the common hangman,—an operation that produced a riot, not in itself dangerous, but which served to discover the angry spirit of the populace. Mr Wilkes was soon after expelled from the House of Commons, and found it prudent to retire to the Continent. The intemperance of party was never so violent as at this period; but, however contemptible the origin of the tumult, the effects were favourable to liberty. General warrants lost their supposed legality, and the seizure of papers, in consequence of such warrants, was no longer to be sanctioned.—When Wilkes prosecuted the secretary of state for seizing his papers, he obtained a verdict of damages. It was on this memorable occasion, that Chief-Justice Pratt, after pronouncing the warrant under which Mr Wilkes was seized illegal, concluded his speech with these words: "If the higher jurisdiction should declare my opinion to be erroneous, I submit, as will become me, and kiss the rod; but I must say, I shall always consider it as a rod of iron for the chastisement of the people of Great Britain." The administration of Mr Grenville was the source of misfortunes to Britain, which are felt at the present day. For a long time, there had existed a trade between the Spanish and American colonies, which, though nominally illicit, was wisely connived at, as it supplied the Americans with their only means of obtaining specie. When ministers found, that their effectual efforts to stop this trade had produced only distress to our own trade, they enacted a law which seemed to legalize it; but such duties were enjoined, as in fact amounted to a prohibition. To complete the climax of impolicy, Mr Grenville enlarged the plan of taxation, by a measure which Sir Robert Walpole, in all the plenitude of his power, had declared that he durst not attempt. This was to raise a direct revenue from America. For this purpose, the celebrated stamp act was passed in March 1765. It was carried through the commons by a great majority. Those who opposed it, contended more against the policy than the principle of the measure. General Conway alone protested against the right of Great Britain to exercise direct taxation over her colonies. On receiving authentic intelligence of the stamp act being passed, the indignation of America broke out into open deeds of violence. The ships in the harbour of Boston hung out their colours half mast high, as a signal of the deepest distress. The bells of the city were muffled, and rang out a dumb peal. The act itself, as soon as it came from the king's printing-house, was burnt by the populace, together with the effigies of the men most active in passing it. The masters of those vessels which had conveyed the stamps to America, were compelled to deliver up their cargoes to an enraged multitude. Those who had accepted commissions to act as distributors of stamps, were forced by public oath to renounce all concern in them. The justices of the peace in many parts gave notice, that they would not act in that capacity, to the subversion of the liberties of their country. The gentlemen of the law, in the exercise of their profession, universally renounced the use of British stamps. But the most alarming opposition was made by the merchants, who entered into solemn engagements, not to import any more goods from Britain till the stamp act should be repealed.

Stamp act passed. March 1765.

Violence of the Americans against this act.

Proceedings respecting a new ministry.

But while the Grenville ministry shewed their confidence and security by this bold act, they were approaching to their downfal. In the arrangement of a bill for eventually settling a regency in case of the demise of the crown, they gave offence to the court, by omitting the princess dowager of Wales. Overtures were secretly made to Mr Pitt and Lord Tem-

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ple, by the party of Leicester house. These were discovered by Mr Grenville, who no longer thought of keeping measures with the Leicester house cabinet; but urged an immediate dismission of Stuart M'Kenzie, the brother of Lord Bute, and of the Duke of Northumberland and Lord Holland, his known supporters.

Mr Pitt and Lord Temple answered the application of the court, by insisting on a total change of men and measures. Finding them immoveable, the court applied to the Duke of Newcastle, and that body of the Whigs afterwards known by the name of the Rockingham party. Had these men joined in a manly adherence to Mr Pitt's terms, it is probable that secret influence would have received an irrecoverable blow; but unhappily the Newcastle party proved flexible, and the Duke of Cumberland, the negociator, had the happiness to see, before his death, the new administration settled in office.

Change of ministry.

The privy seal, with the patronage of the church, was given to the Duke of Newcastle. The Marquis of Rockingham became first lord of the treasury; Mr Dowdeswell, chancellor of the exchequer; the Duke of Grafton and General Conway, secretaries of state. The admiralty was assigned to Earl Egmont; and the great seal to Lord Northington. Lord Temple, with great bitterness, but Mr Pitt, with a proper decorum, condemned an acceptance of place at a time when the court might so easily have been brought to terms. The new ministers, on the other hand, charged the friends of Mr Pitt with undue inflexibility, and with preferring to put all to hazard, when some great points might, with certainty, be secured.

Tumults in America. 1766.

The oppressive and vexatious regulations of the stamp act excited, as had been predicted, an implacable and general discontent throughout America; a spirit which broke out into open tumult in the neighbourhood of Boston. Intelligence of this alarming spirit had reached ministers before the meeting of parliament, which was opened by a speech truly marked with the liberal principles of the new ministers; and recommending conciliation to America.

Jan. 14.

On this occasion, Mr Pitt, with great manliness, stated his approbation of many of the new ministers, and declared, that he was disposed to hope well from their measures. "But confidence," he added, "is a plant of slow growth in an aged bosom." George Grenville having inveighed against the Americans, the spirit of the patriot took fire, and burst forth into one of the most eloquent replies that ever echoed within the walls of any assembly. It concluded with emphatically urging the immediate, absolute, and unconditional repeal of the stamp act.

Stamp act repealed.

A bill was accordingly almost immediately introduced for its abolition; and, notwithstanding a violent opposition, it passed both houses by a great majority. It was accompanied with a declaratory act, asserting the power and right of Great Britain to bind the colonies in all cases whatever.

This last act, when it reached America, was universally regarded as a mere salvo for the honour of the mother country; and, on that account, scarcely diminished the joy which was expressed at the repeal of the stamp act; nor, according to all human probability, would it have been ever enumerated by the Americans among their grievances, if the British government had not returned to the practical plan of taxation for a revenue. The Rockingham administration had the merit of reconciling America; and of other measures which, although of less importance, were also patriotic and popular. Several obnoxious taxes were repealed, and general warrants were declared illegal. Unhappily for the good of their country, their duration was short; and, it is still more to be regretted, that they fell by the influence of that man who, on other great occasions, had never swerved from the interests of the state. Lord Chatham, probably prompted by resentment at the late dereliction of the Rockingham Whigs, accepted a *carte blanche* from the court to come into power. He could not be ignorant, that the great cause of that offence, which the court secretly cherished against the Rockingham Whigs, was owing to their lenity towards America; yet he alienated himself from that moderate and respectable party, and vainly trusted to carry his own plans respecting America into effect in a ministry composed of Whigs and Tories, a discordant junction, which Mr Burke so aptly compared to *a tesselated pavement*. In the new ministry, the Duke of Grafton was appointed first lord of the treasury; Mr Pitt, now created Earl of Chatham, accepted the office of lord privy seal. Their associates in office were the Earl of Shelburne, Lord Camden, and Mr Charles Townsend. The last, who was by no means attached to the Whigs, was made chancellor of the exchequer. Scarcely had the ministry commenced their career, when the impolitic system of taxing the colonies was renewed. He introduced a bill for imposing a tax on tea, glass, colours, imported into America; glossing over the measure as coming within the acknowledged principles of commercial regulation; whilst the payment of these duties into the British exchequer virtually amounted to direct taxation. This passed with little or no opposition at home. In this and other financial acts, Lord Chatham bore no part; being confined by extreme illness from executing any of the duties of his office. When, on the death of Mr Charles Townsend, Lord North succeeded to his place, Chatham was convinced, that his influence on public transactions was at an end, and he resigned; but he had not resigned before intelligence had arrived of the effects of Mr Townsend's new stamp act. America presented a scene of discontent bordering on rebellion; and though tranquillity was apparently restored at Boston, by an armed force, it was not of long duration. In the mean time, a war had broken out in the East Indies between the British and Hyder Ally, which was carried on with various success. The Irish obtained an act, by which the parliament of that country, determinable formerly at the king's decease, was appointed to be chosen every eight years. Other events of lesser moment occurred in this year; but the public attention was chiefly engrossed by the reappearance of Mr Wilkes.

This gentleman, who had incurred a sentence [illegible] outlawry, returned to England just before the [illegible]ral election; and, with his usual boldness, [illegible] himself to represent the city of London. The however, were not prepared to accept his services, and his enemies were rejoicing in his defeat, when, to their surprise, he carried his election for the county of Middlesex, against the whole influence of great landed property, and the whole strength of government. His success was the signal for riot, and every species of tumult. A mob assembled round the King's Bench prison, to which Mr Wilkes was sentenced for two years; and the riot act being read in vain, the military fired upon the people, several of whom were killed and wounded. This served only to increase the popular rage, and tended ultimately to weaken the influence of administration. When, on the death of Mr Cooke, the other member for Middlesex, Mr Serjeant Glyn offered himself on the popular side, he carried his election against the whole interest of the court. At this election, a riot took place, in which some of the populace were killed. The murderers, though tried and convicted, found means to escape.

Wilkes had not yet taken his seat, when he published a letter, that fell into his hands, from Lord Weymouth to the chairman of the Surrey quarter sessions. This he chose to consider as the cause of the massacre committed in St George's Fields. A charge that so nearly affected the nobleman's character, was not passed unnoticed. Mr Wilkes was adjudged guilty of a breach of privilege, and expelled the House of Commons. The Middlesex electors again chose him; but the House of Commons declared his election void, and made out a new writ. To prevent him, if possible, from again succeeding, Mr Luttrel vacated his seat, and stood candidate for Middlesex. This gentleman, although he had not a fourth part of the votes which Mr Wilkes had, and was not returned by the sheriffs, was declared, by the House of Commons, to be duly elected. It was argued, that Mr Wilkes, having been once expelled, could not again be elected; and that as a vote for a man not eligible is not a legal vote, it followed, that Mr Luttrel had the majority of votes. The freeholders of Middlesex petitioned against a resolution which they deemed so unconstitutional; but the house voted, that, according to the law of parliament, a resolution once passed, could not be reversed in the same session.

These proceedings were considered so important to the nation, as to draw their attention from affairs which afterwards appeared to be more important. The parliament engaged in warm debates on the policy of taxing America, while the natives in the new world continued more refractory. A special commission, which was issued for trying American delinquents in England, did not pass without a vehement, but unsuccessful opposition, on constitutional grounds.

For more than two years, the subject of the Middlesex election engaged and agitated the public mind. In parliament, the eloquence of Chatham and of Camden were exerted in vain, to obtain a reversal of its proceedings. Lord Chatham declared, that the people had no confidence in the existing parliament, and proposed petitioning his majesty to dissolve it. On this, Lord Camden having divided with the opposition, he was immediately deprived of the great seal. The dismission of Lord Camden was speedily followed by the resignation of the Duke of Grafton, who, though far from joining the standard of opposition as a decided partizan, had, on one occasion, voted in support of Lord Rockingham's motion against his majesty's secret advisers. The Duke of Grafton's place, as first commissioner of the treasury, was immediately filled by Lord North, who had been for two years chancellor of the exchequer. Thus was unfortunately formed an administration, which exercised the powers of government for 12 successive years; and, by its vindictive spirit, and its obstinacy in error, shook the British empire to its foundation.

Mr Townsend's stamp act modified.

During this year a part of Mr Townsend's stamp act was repealed; but that part of it which regarded the imposition on tea was continued; and unfortunately the spirit of the act still remained. In vain was it urged, that the repeal of our most obnoxious impositions had produced all the happiest effects predicted by the advocates for that repeal; that lenity on our part had produced moderation on the part of America; and that the recent discontents had arisen from fresh provocations.

The Falkland Islands taken by Byron.

Spain remonstrates against this proceeding.

Wearied at last with fruitless contest against the ministry, the nation seemed prepared to fix its regard on any new object of political interest which should present itself. In the year 1764, Lord Egmont being then at the head of the admiralty, a settlement had been projected on the Malouine or Falkland Islands, and Commodore Byron was sent out to take possession of them. It happened that, about the same time, a settlement had been made, and a fortress erected, by the French navigator M. Bougainville, on one of these islands to the east of the English settlement, under the name of St Louis. But, in consequence of the representations of the court of Madrid to the court of Versailles, this was soon yielded up to the Spaniards, who gave it the name of Port Solidad. It was well known, that (Brazil and Surinam excepted) Spain pretended to the absolute sovereignty of the whole southern continent of America, and the islands belonging to it. The English settlement, therefore, excited at the court of Madrid the highest alarm and uneasiness, not merely as an encroachment on the right of dominion, but because it was evident, that the principal inducement of England to form this settlement, was the facility which it would give to an attack upon the Spanish territories bordering on the great South Seas. Spain remonstrated without effect, and, dreading the power of England, might have probably submitted to the aggression, had not the loss of reputation sustained by England, from her tame acquiescence in the cession of Corsica to France, emboldened the court of Madrid to second her remonstrance by vigorous preparations. Towards the close of the year 1769, Captain Hunt of the Tamer frigate, cruising off the islands, fell in with a Spanish schooner belonging to Port Solidad, and commanded the Spaniard to leave the coast. The captain of the schooner obeyed; but returned with a letter from the governor of Buenos Ayres, warning Captain Hunt, in his turn, to quit the Malouine coast. After some altercation, Captain Hunt returned to England, lea-

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ving only two small sloops at Port Egmont. In a short time, a large Spanish armament appeared before the British settlement, and summoned it to surrender;—a summons which Captain Farmer, the commandant, readily obeyed, as resistance would have been unavailing. By the terms of capitulation, he was allowed to return to England; but by an unparalleled insult to the British flag, he was detained by the Spaniard for twenty days. The news of this transaction excited a violent indignation in England; and had the warlike spirit of Lord Chatham still guided the national councils, the discussion of the right to these islands would have been preceded by actual retaliation on the part of Britain; but the conciliatory temper which we refused to our colonies, was on this occasion extended to enemies. A negotiation took place. The Spaniards restored the islands; but it was privately stipulated, that they should be afterwards evacuated by Great Britain; and since that time, no settlement has been made upon them. Upon the whole, setting aside the affront offered to our flag, the grounds of the quarrel do not seem to have justified a war. And though the pretensions of Spain to the whole empire of South America may seem ridiculous, let us ask if the pride of Britain would not have been alarmed, had Spain attempted to form a settlement, or to establish a garrison, in any part of the dismal wilds of Labrador, or the frozen regions of Hudson's Bay.

1771.

Proceedings respecting the reporters of debates.

The year 1771 was distinguished by an extension of the liberty of the press, in a point of vital interest to public freedom. Before this period, the publishers of the debates in parliament encroaching, they knew not precisely on what grounds, had given the speeches either under fictitious names, or merely with the initials of those of the speakers. By degrees, however, the papers began to assume more liberty; and some of them, by that incorrectness of reporters which can never be avoided, grossly misrepresented many of the speeches. A member of the House of Commons complained, that he had been thus injuriously treated, and the house took up his cause with great warmth. They ordered the printers to attend the house. The printers conceiving that they were not bound by law to obey, refused obedience; and the serjeant at arms, who was sent to arrest them, was treated with contempt. On this, the house addressed his majesty to issue a proclamation. By virtue of which they were apprehended, but immediately dismissed by the magistrates; one of them by Mr Wilkes (at that time alderman of London), a second by Alderman Oliver, and a third by Mr Crosby, the lord mayor. The magistrates were applauded by the populace, and publicly thanked by the citizens in common-council. The commons in indignation committed Mr Wilkes and the lord mayor, both members of their own house, to the Tower. They were brought up, indeed, by habeas corpus, and their case was brought before the Court of Common Pleas; but after long and learned pleadings, these magistrates were remanded by the court, and their liberation was celebrated with universal rejoicings. The house, or, more properly speaking, its leaders, the ministers, were peculiarly perplexed with Mr Wilkes. He had been ordered to attend at the bar of the house; but, in return, he pleaded his privilege as a member, refusing to obey the summons in any other character. It was now that the commons discovered themselves in a dilemma, from which they chose to make a ridiculous retreat in preference to persevering. They ordered Mr Wilkes to appear on the 8th of April, but adjourned to the 9th. In consequence of this implied victory on the part of reporters, they have since exercised a privilege important to the political knowledge of the community, although they are still amenable to parliament for wilful misrepresentation. During the recess of parliament, in the summer of the same year, some official changes took place in the administration, in consequence of the death of the Earl of Halifax, a nobleman, generous and accomplished; but as a minister, unpopular and unfortunate. He professed the principles of the Whigs, but acquiesced, for the sake of ambition, in the Tory measures, which predominated in the present period; yet he had filled the lieutenancy of Ireland with ability and applause. The Earl of Suffolk succeeded him as secretary of state for the northern department, and the Duke of Grafton accepted the vacant post of lord privy seal.

For some succeeding years, the administration of Lord North was marked by few events of signal consequence. An application was made by a considerable body of the established clergy, and by a number of the laity in those professions, which required subscription to the thirty-nine articles, for relief from that severe test of faith. The bill for granting this relief was carried through the commons, but was rejected by the lords. The same fate attended a motion in favour of the dissenters, for a farther enlargement of the toleration act, which was successfully made in the lower house by Sir George Savile. In consequence of the marriage of the Dukes of Cumberland and Gloucester to women of inferior rank, the royal marriage act was about the same time passed. By this law, the descendants of George II. were, with a few exceptions, prohibited from marrying without the royal consent. The bill was not passed without encountering a spirited opposition. The descendants of George II., it was observed, might in time comprehend a vast multitude of individuals; and the right of government itself, to prevent an indefinite number of human beings from enjoying the common privilege of nature in contracting marriage, was reasonably called in question.

The affairs of the East India Company occupied much of the attention of parliament at this period; and a new regulating bill was past for reforming the government of India, by great parliamentary majorities, and with the general concurrence of the nation. For the particulars of these changes, we must refer our readers to a future article. We shall only notice at present, that while the vigour of these regulations was apparent, experience could only prove their deficiency in wisdom. This may be considered as the most brilliant era of Lord North's administration; but, while the nation was enjoying and looking forward to tranquillity, a tempest was gathering abroad.

The affairs of India had scarcely been discussed, when it was necessary to turn a serious attention to

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those of America. The unfortunate disputes with our colonies, revived by the imposition of the port-duties in 1767, had suffered no abatement, though kept out of view by domestic bickerings of infinitely less importance. The non-importation agreement entered into by the colonies has already been noticed; but though the Americans confined their practical opposition to commercial combinations, they began to indulge a boundless licence of speculative discussion, on the nature and extent of parliamentary power. Nor was the tax upon tea the only cause of disaffection. The dependence of the governors and judges in America had been transferred from the people to the crown. In the act, which imposed the port-duties in 1767, was a remarkable clause, which gave scarcely less umbrage and alarm than the taxes themselves,—a clause empowering the crown, by sign manual, to establish a general civil list throughout every province in America, with any salaries, places, or appointments, to the very last shilling of the American revenue. In 1768, the assembly of Massachussets-bay had called upon the different colonial legislatures to join with them in petitioning the king respecting the grievances of America. In spite of all the instructions of Lord Hillsborough (secretary for foreign affairs) to the governors of the provinces, their respective assemblies concurred with the proposal of the Bostonians; and a committee of correspondence was framed among them; and a general spirit of union appeared to pervade America. The first tumults arose at Boston, where the populace rose on the commissioners for levying the taxes, and compelled them to take refuge at a fortress near the town. In consequence of this riot, troops were landed to overawe the citizens, under cover of fourteen ships of war; while the assembly of the province openly directed the inhabitants to hold themselves provided with arms. This was the provocation which, in the ensuing year, the British parliament thought a sufficient justification for reviving an obsolete and tyrannical statute of Henry VIII. for bringing persons accused of treason beyond seas to trial and punishment in England. The measure excited, throughout all America, a just and terrible alarm. In such a state of mind, the Americans looked back on the late concessions of the mother country with suspicion; and their suspicions had but too palpable grounds to lay hold of, when they saw that, by maintaining the right of taxation in a single case, they retained the principle, and founded a precedent for its indefinite application. The residence of the military at Boston, far from quieting, only enflamed the populace. In 1770, an affray took place, in which the military were constrained to fire upon the rioters, and several lives were lost.

During the session of the Massachusset's assembly in the summer of 1773, a discovery was made, which added fresh fuel to the flame, long since kindled in that province. The celebrated Dr Franklin, agent of the House of Representatives in England, had acquired possession of certain letters, written in confidence by Governor Hutchinson and others to their friends in England, in which they spoke of *coercive measures*; of taking of *incendiaries*; and of *altering charters*, with the utmost freedom. Franklin immediately transmitted these letters to his constituents. They excited excessive indignation, and produced a petition from the Massachusset's assembly to the king, to remove their governor. The petition was transmitted to Dr Franklin, presented to the king, and by his majesty laid before the privy council. Dr Franklin was summoned to support the petition before the same meeting, where he received from the Lord Chancellor Loughborough the grossest abuse. He was pronounced a forger of the letters; and the Massachusset's petition was rejected as scandalous and seditious.

Duty on tea repealed 1773.

The duty of tea, as we have already remarked, had been left as a token of legislative supremacy. The East India company, reduced almost to bankruptcy by the accumulation of their teas, were urgent with the minister to repeal the Ameritan duty of 3d. a pound, offering in lieu of it, to pay double the sum on exportation. At length, in 1773, an act passed for permitting the exportation of teas duty free. The East India Company hoped, by this measure, to regain the American market, and the government still exulted in upholding the principle of taxation, since the Company, instead of America, had paid the duty; but in this they were both disappointed. When the tea was attempted to be landed, the mob arose in Boston harbour, boarded the ships, and threw their cargoes into the sea, retiring peaceably afterwards, without giving or receiving any personal violence. Other places followed the example, and in no places was the delivery of the tea to its consignees permitted by the Americans. Such resistance could not long be concealed, and it reached England, heightened by many exaggerations. The tidings were communicated by the minister to parliament, at their next session, and a plan of coercion and punishment destined to be tried in America, was received and voted with almost universal enthusiasm. A remonstrance, indeed, was presented by the Americans resident in London, concluding with a bold avowal, that the attachment of America could not survive the justice of Great Britain; and the voice of the minority was also raised, though ineffectually, to advise conciliation. A bill for removing the custom-house and seat of government from Boston to Salem, and another for depriving the Massachussets state of its charter, were passed during the session, the former without a division, the latter by a great majority. Lord Chatham, at this early stage of the dispute, declared his unalterable opinion, that Britain had no right to tax America. "As an Englishman, (said that venerable statesman,) I recognize to the Americans their supreme unalterable right of property. As an American, I would equally recognize to England her supreme right of regulating commerce and navigation. This distinction is involved in the abstract nature of things. Property is private, individual, absolute—the touch of another annihilates it. Trade is an extended and complicated consideration—it reaches as far as ships can sail or winds can blow; it is a vast and various machine, which requires the superintending candour and energy of the supreme power of the empire. Taxation is theirs, commercial regulation is ours." But the language of the lords in administration was high and decisive; it was declared that

Mob at Boston on the arrival of the tea ships.

1774.

the mother country should never relax till America acknowledged the supremacy of Britain. The Americans, on the other hand, as soon as they heard of the bill for shutting up the harbour of Boston, for abolishing the charter of Massachussets, for quartering troops in America, and for other coercive measures that were in preparation, testified a determined spirit of resistance. Yet this determination, though firmly, seemed not to be willingly adopted; so many of them were connected with Britain by commercial ties, that the prospect of a civil war presented the most terrific ideas.

Proceedings of the congress of deputies at Philadelphia.

When General Gage arrived with fresh forces at Boston, they addressed him in strong, but respectful terms; and declared that they were ready to promote a reconciliation on any terms consistent with their rights as British subjects. Their remonstrance was, however, disregarded. A general congress of deputies from all the states was now loudly demanded by the Americans; and, in the mean time, the committee of correspondence at Boston, bound themselves by a solemn agreement, to suspend all commercial correspondence with Britain. It was in vain that General Gage protested against these proceedings. The congress of deputies was appointed to be held at Philadelphia, and the American magistrates informed the several governors, that their power was no more. The congress consisted of 51 delegates, and commenced with an address to the governor-general, in which they set at defiance his endeavours to overawe their proceedings. His authority was in fact gone; he could not even procure the lowest mechanics to erect barracks for his soldiers. The resolutions of the congress, on the other hand, had all the validity of laws. They proceeded to draw up a petition to his majesty, a memorial to the people of Great Britain, and an address to the colonies in general. Having finished these addresses, they adjourned, after a session of 52 days.

Proceedings in parliament.

A new British parliament assembled towards the end of 1774; but the discussion of American affairs was at first studiously avoided by the ministry. When the subject was opened, their language was still expressive of contempt for the rising spirit in the colonies; and it was even intimated, that the apprehensions of a war were wholly chimerical. The estimates were formed entirely upon a peace establishment; the army remained on its former footing; and, what was most of all surprising, a reduction of 4000 seamen took place from the 20,000 voted in the last year, Lord Sandwich, first lord of the admiralty, declaring, that he knew the low establishment proposed would be fully sufficient for reducing the colonies to obedience. The petition from the congress to the king, having been referred by his majesty to the House of Commons, the American agents, Dr Franklin, Mr Bollan, and Mr Lee, petitioned the house to be heard at the bar, in its support. But the ministers alleged, that the congress was no legal body, and refused to give them a hearing. A similar fate in the upper house attended Lord Chatham's bill for settling the troubles in America; and the very day after the rejection, a motion was made by Lord North, to declare America in a state of rebellion. On this momentous occasion, the strength of that party which had combated the hostile system towards the colonies, was considerably increased; they divided on this occasion, 106 against 288. They were joined by the rising talents of Charles Fox, who had lately been dismissed from the treasury bench, for displaying a spirit not sufficiently submissive. Though the feelings of the British nation were at this period torpid or undecided with respect to America; yet the triumphs of administration, in rejecting all the plans of conciliation proposed by Lord Chatham, Mr Burke, and the other leaders of opposition, were not undisturbed by many remonstrances from important bodies in the nation. The city of London remonstrated; the West India merchants and planters petitioned against measures, which threatened to involve them in ruin. The declaration of America being in a state of rebellion was, however, immediately followed up by a bill for restraining the trade and commerce of Massachussets-Bay and New Hampshire, the colonies of Connecticut and Rhode Island, and Providence Plantation, in North America, with the British and West India islands; and to prohibit their fisheries on the banks of Newfoundland. After so strong a measure, some surprise was excited, when Lord North advanced a conciliatory motion, of which the purport was, that when the Americans should propose to make such provisions for the support of their civil government as should be approved of by his majesty and the parliament, the British government would abstain from taxing them, and confine themselves to their commercial regulations. Some of the zealots of the minister's friends, expressed alarm at the extent of this concession; while the friends of America justly derided it as nugatory, since it was the *right*, and not the mode of taxation which the colonies disputed.

1775.

In the mean time, the military preparations, on the side of the Americans, had proceeded with ardour. The cannon and stores, belonging to government, were seized by the provincials, in Rhode Island and other places; as, on the other hand, General Gage had seized a number of warlike stores, deposited in the vicinity of Boston. Having received intelligence of a considerable magazine deposited in the vicinity of Boston, the British commander detached, on the night preceding the 19th of April, 800 grenadiers and light infantry, under Col. Smith, who proceeded in their march with great silence; but by the firing of guns and ringing of bells, they at length perceived themselves discovered; and, on their arrival at Lexington, at five in the morning, they found a company of militia drawn up on the green. With these men, the advanced guard of the king's troops exchanged fire, and the Americans, after losing a few men, retreated. After which, the royalists proceeded to Concord, and destroyed the stores. On their return, the passage of a bridge being disputed by the provincials, a skirmish ensued, with the loss of a few men on both sides: the people rose in all quarters, and by a scattered but destructive fire, from behind trees and hedges, they made the British suffer considerably. A second body of troops, which General Gage had the prudence to send to Lexington, secured their retreat, and they returned to Boston about sunset, after losing 300 men, while the loss of the provincials did not exceed 90. Within a few days after the first blood had been drawn at Lexington, the provincial congress of Massachussets voted a large army to be raised; and so great a military force was immediately collected in the neighbourhood of Boston, as to form a complete blockade of that important town.

Such was the inauspicious commencement of the civil war. In the month of May, the American Congress, now joined by the colonies of New York and North Carolina, unanimously rejected Lord North's conciliatory proposition: it laid a basis too narrow, indeed, for a solid reconciliation, and its reception might have been foreseen. At the latter end of the same month, the British Generals Howe, Burgoyne, and Clinton, arrived at Boston with a large reinforcement of troops, so that the force now assembled in that place, or its vicinity, amounted to no less than 10,000 men. Martial law was proclaimed; but a shew of conciliation was still held out by the offer of General Gage, in the king's name, to grant a general amnesty to such as should lay down their arms, excepting only two distinguished Americans, Samuel Adams and John Hancock. The congress took no other notice of this proclamation, than to elect Mr Hancock the president of their assembly.† They chose, at the same time, George Washington the commander in chief of their army.

The British generals, weary of their confined situation, and affected by the disgrace of being blockaded, had determined to get possession of the heights of Dorchester, near the town of Boston, when they were surprised to see entrenchments thrown up by the Americans in an opposite quarter, on an eminence called Bunker's Hill. This post General Howe attacked in person with 3000 chosen troops, and, at last, drove the Provincials from their entrenchments; but this was a slight advantage, and dearly purchased, by the loss of 1100 of the British, who fell in storming the works; while the Americans retreated across an isthmus, to a new position, with inconsiderable damage, and still continued the blockade of Boston. Elated and exasperated as the provincials were by this fresh bloodshed, and by a battle which, though nominally a defeat on their side, yet gave a signal proof of their abilities in war, the congress sent a second petition to the king for peace, and accommodation and reunion with Britain. Mr Penn, who delivered the petition, was informed, that no answer would be given to it.

Nor was the spirit of the Americans confined to defensive operations. As it was known that Canada had determined to be neutral, and that her militia had refused to obey General Carleton's orders to march beyond their own limits, they determined to carry the war into that province. General Montgomery, with 3000 men, proceeded along the lake Champlain; and having, with great gallantry, carried the forts of St John and Chamblée, pressed forward to Montreal. Meanwhile an irregular band of the green-mountain men, under Colonel Allen, seized Ticonderago; and General Arnold, by a march of incredible hardihood and activity, reached the southern bank of St Lawrence, where he awaited Montgomery. The latter joined him on the 1st of December, and commenced the siege of Quebec, which contained a garrison of 1600 men. By a novelty in military science, arising from the dreadful rigour of the climate, Montgomery's batteries were composed of snow and water, which soon consolidated into ice. But his artillery making only a slight impression, he determined on attempting the place by assault, and attacked the town in different quarters. Montgomery fell in this bold assault, within 50 yards of the walls of Quebec. The attempt completely failed, and a whole division of the Americans were made prisoners. It reflected, however, no small credit on the surviving General Arnold, that, wounded and repulsed as he was, he still continued the blockade of the place, and reduced it to great distress.

Siege of Quebec.

Proceedings in the provinces.

In Virginia, after many disputes with the people, the governor, Lord Dunmore, at last took refuge on board a ship of war which lay off York town. He proclaimed martial law, and invited the negroes to arrest their owners, and join the royal standard; a measure which produced but few opportunities of emancipation to the slaves, and much more irritation than damage to the enemy. A more serious blow was inflicted on the town of Norfolk, which, for refusing to supply the shipping in the Chesapeak with provisions, was cannonaded, and laid in ashes in the space of a few hours. Governor Eden, with admirable moderation, for some time averted the last extremities of the contending parties in Maryland; he retired from his government with universal esteem. In the Carolinas, Lord W. Campbell and Governor Martin, adopting the policy of Lord Dunmore, fled, like him, to the ships in their harbours. In Pennsylvania a military association was formed, and the whole chain of colonies was now in arms.

The British government call in the aid of the Indians.

Application was made by the British government, to obtain the alliance of the native Indians against the colonists. Some of these rude tribes, with an affecting and simple eloquence, which might have taught wisdom to those who boasted of more humanity, exhorted the brethren of the old and new world, to bring their unnatural quarrel to an end. But others of them, bordering on the great lakes and rivers, were prevailed upon by the presents and solicitations of Colonel Johnson, to take up the hatchet; and, at a great war feast, they were invited by that officer, in their own dreadful phraseology, to banquet on the blood of a Bostonian. In contemplating the inhumanity of having recourse to such aid, it is but a small consolation to think, that it was wholly inefficient to promote the arbitrary measures of a misguided government. However contemptible as a general instrument of war, it produced abundance of misery in detail.

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† By the act of confederation passed in the assembly this year, the provinces are denominated, "The Colonies of America United" for their common defence, for the security of their liberties and property, and for their mutual and general safety and welfare. The act ascertained the power of congress, and prescribed their mode of action; the confederation was declared to be established until the terms of reconciliation proposed in the petition of congress to the king should be agreed to; the obnoxious acts repealed; reparations for the injuries done to Boston and Charlestown (a suburb of Boston, burnt amidst the first hostilities); and till the British troops should be withdrawn from America. On these events taking place, the colonies were to return to their former connections and friendship with Great Britain; but, in failure of that, the confederation was to be perpetual.

Meeting of parliament, Oct. 26th.

Parliament met, after a short recess, on the 26th of October 1775. From the speech from the throne, it was evident, that peace would not yet be offered to America, but at the price of her unconditional submission. During the summer recess, the Duke of Grafton, who had for some time viewed the hopeless state of the American quarrel, and the violence of his associates in the cabinet with extreme regret, had made an effort to procure a change of system; and, on the receipt of a second petition from congress, renewed his solicitations, but without effect. On this his grace made a second resignation; and some other changes took place in the cabinet, which left the management of affairs more unembarrassed than ever, by the suggestions of those who hesitated in the system of overawing America. In both houses, however, a strenuous opposition was raised to the present measures. "We have beheld (said the Marquis of Rockingham, and the minority lords, in a spirited protest which they entered on the journals of the peers), we have beheld with sorrow and indignation, freemen driven to resistance by acts of oppression and violence; and we cannot consent to deceive his majesty and the public into a belief of the confidence of this house in the present ministry, who have lost the colonies, and involved us in a civil war against our clearest interests, and upon the most unjustifiable grounds."

Attempts to effect a reconciliation with America.

On the 10th of November, the Duke of Richmond obtained a reluctant vote of the peers, to examine Mr Penn, who had brought the petition from congress, emphatically styled by the framers of it, the *olive branch*. The colonies, Mr Penn affirmed, would still allow the imperial authority of Britain, though not its right of taxation: that the rejection of the present offer would certainly prove an insuperable bar to reconcilement; but the prevailing wish in America still was, restoration of friendship with Britain.

1776.

In the commons, Mr Burke's bill for quieting the troubles in America, and Mr Fox's motion of enquiry into the ill success of our arms in the same quarter, produced the strongest admiration of the speakers, but no change of resolution in the house. Large supplies were voted, and the land-tax was raised to four shillings in the pound. On this occasion, the country gentlemen, while they smarted under the taunts and sarcasms of the opposition at the *first fruits* of their American war, were alarmed by a declaration of the minister, that the contest with the colonies, was not now for taxes, but for sovereignty. With difficulty did the minister soften them by the assurance, that the project of taxing America would not be given up. Supplies were also voted for the payment of 18,000 mercenaries, the troops of the Landgrave of Hesse, and the Duke of Brunswick, who were to be brought, at the expence of many millions, to effect the reduction of the new world. By a bill, introduced soon after the meeting of parliament, all trade and intercourse was prohibited with the revolted colonies; and their property, whether ships or goods, were declared to be forfeited, to the ships or crews who might be their captors.

Block of Qu

To return to the state of the war in America, we find the blockade of Quebec continued by Arnold, and afterwards by Sullivan, with surprising perseverance, in spite of the disastrous issue of Montgomery's attempt. Early in the spring of 1776, a naval armament from Britain forced their passage through the river St Lawrence; and General Carleton, animated by the reinforcement, pursued the Americans, who, before his arrival, broke up their camp, weakened by disease and hardship. The Americans were driven, post after post, from all that they had gained in their northern irruption except from Lake Champlain, and exertions were made by the Generals Carleton and Burgoyne, to obtain a superiority there also, by constructing a greater number of vessels.

The Br abando Boston

The garrison of Boston, which was maintained at an incredible expence by supplies from England, continued to be closely blockaded during the winter of 1775–6. In the month of March 1776, General Washington, by a masterly stroke, compelled the British to abandon it. Passing in profound silence, with 2000 men, the neck of land which separates Dorchester heights from the town, he constructed, in a single night, a redoubt, which gave him command of the heights, and menaced the British shipping with destruction. A storm of wind and rain prevented General Howe from attempting to dislodge him, but did not impede the industry of the Americans in strengthening their works, till they were too secure to be carried by a *coup-de-main*. Another work being thrown up by the enemy, which, from its proximity, had the entire command of Boston Neck, the British commanders had no choice but to evacuate the town. The whole troops, and such of the loyalists as chose to follow their fortunes, were accordingly embarked, and sailed for Halifax. Washington, on the succeeding day, entered Boston in triumph.

Defence Sullivan's island.

The defence of Sullivan's island, near Charlestown, the capital of South Carolina, also gave spirit and reputation to the American cause. In the month of June, the fleet under Sir Peter Parker, having on board a considerable land force, commanded by General Clinton, anchored off Charlestown-bar. Two ships, the Bristol and Experiment, each of 50 guns, having with difficulty passed the bar, proceeded to cannonade the fort of Sullivan's island, which defended the approach to the town; but, after sustaining a dreadful fire from the American batteries, they slipt their cables at night, and retired, almost torn to the water's edge; and the Actæon, of 28 guns, having run ashore, was obliged to be set on fire and abandoned. The attempt on Charlestown was necessarily abandoned, and Sir Peter Parker set sail for New York. Indeed, the number of the native troops, which had assembled from all parts of the province for the defence of their capital, under the command of an experienced and spirited officer, General Lee, together with the specimen of their resistance already exhibited, gave but slender hopes of success in pushing on the enterprize. According to Mr Penn's prediction, the refusal of the "olive branch" was followed by a general determination of the Americans for independence. It might have been indeed foreseen, that whatever sentiments pervaded the colonies before the rejection of this petition, this event could not but operate, both as a cause of new alienation, and a pretext for declaring what had been formerly concealed. It was not to be looked for, that the leaders of a revolution should step down from the rank of champions and rulers, to that of subjects and suppliants: it was not possible, that, while the war was every day adding thousands of individuals to those already pronounced traitors by the laws of England, ideas of peace or submission should become prevalent. Those provinces, accordingly, which had been the most backward in declaring for independence, North Carolina, Pennsylvania, (and Maryland, the most reluctant of all,) at last concurred in the confederation. The delegates of the thirteen United States being now unanimous, solemnly promulgated their declaration of *Independence* on the 4th of July 1776. Appealing to the Supreme Judge of the world for the rectitude of their motives, they absolved, in the name of their countrymen, all their allegiance to the crown of Britain, and political connection with the British state. However justified by general views, and by the event itself, Lord Chatham's prediction, that we could not conquer America, might be, the boldness of the Congress in declaring their independence, formed a striking contrast to the present dangers of their situation. General Washington's head quarters, after the capture of Boston, were fixed at New York; and both this place and Long Island were put into the best posture of defence that could be prepared against an enemy now double in number to the continental army.* The British army in this quarter consisted of nearly 30,000 men, amply provided. General Howe arrived, about the end of June, off Sandy Hook, with the troops which he had removed from Boston, and was joined by his brother, Lord Howe, at the head of the fleet, and with reinforcements. The Howes were popular in America; and they were chosen with a shew of pacific policy, to carry out offers of peace, together with the terrors of the British arms. But their commission was never shewn to the Americans, if we may trust the declaration of Washington, to contain any terms worth listening to; and their proclamation, which offered pardon to the colonists in arms, was emphatically answered by the same commander in a few words, that, having taken arms to defend their indisputable rights, they were conscious of no guilt, and wanted no pardon.

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Both sides prepared seriously for action. On the 26th of August, the whole British army being reimbarked, landed on the south-western extremity of Long Island; on the opposite side of which, in view of the island and city of New York, was stationed a large body of the Americans under General Sullivan. An engagement took place, in which the Americans were driven back to their lines at Brooklyn, their commander Sullivan taken prisoner, and 1000 of their men killed or captured. The British troops, whose ardour to storm the enemy's lines could scarcely be restrained, broke ground at 600 yards distance from the nearest redoubt, and the ships in the bay waited only for a fair wind to enter the east river, and thus completely cut off the Americans from all retreat to the continent. In this situation, the genius of Washington enabled him to make an admirable retreat. He effected it on the succeeding night, under cover of a thick fog, with such silence, order, and secrecy, that a British army, only a quarter of a mile distant, knew nothing of it till the last boats of the Americans were seen passing the river, out of reach of the batteries. General Howe, next morning, took possession of the deserted works of Brooklyn, the only fruits of his victory. An interview took place, at the desire of Lord Howe, after this affair, between his lordship and some members of the congress, (Franklin, Adams, and Rutledge,) upon Staten Island. The British commander, though he promised that the authority of congress should be subsequently acknowledged, to substantiate an accommodation if it should be made, declared that he could only receive the gentlemen of congress as individuals, not as members of a legal body: but it was wholly unnecessary to institute any such distinction; for the American deputies declared, that his lordship's commission contained no new authority, and that his power of inquiring into the situation of America, held out no distinct advantage that could induce the colonies either to treat or to disarm.

Washington succeeds in avoiding a general battle.

Having taken possession of New York island and of the city, with little opposition, General Howe endeavoured to bring his antagonist to a general action: a crisis which Washington had sufficient sagacity and choice of positions to succeed in avoiding. From the environs of New York the American commander retreated to Kingsbridge, and from thence to a new and strong position on the White Plains, with the deep river Brux in his front, and the North River behind his rear. Here the incessant rains of October prevented Howe from attacking him, or discouraged the dilatory disposition of the British general, till he withdrew to the high woody lands bordering on North Castle district. Howe, thus despairing of bringing him to a general engagement, determined to attack Fort Washington, a strong post which the Americans still retained on the North River. It was carried by assault, and 2700 men were made prisoners. Fort Lee, on the opposite or Jersey side of the same river, was soon after abandoned to General Cornwallis without a struggle. Washington, with diminished numbers, continued his retreat before the van of Lord Cornwallis, to Brunswick, and from thence to Princetown. On the 8th of December Lord Cornwallis reached the banks of the Delaware, just as the rear guard of the Americans gained the opposite shore; but a cessation of the pursuit became indispensable for want of boats. Washington at this period trembled for the fate of America, and talked of retiring to the recesses of the Alleghany moun-

Fort Washington taken by the British.

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* The American army, at this time, in and near New York, did not exceed 18,000 men.

tains; but the British troops, in the full career of success, were ordered into winter cantonments. Amidst these successes, Rhode Island was seized by the British; and General Lee, an active American commander, whose talents were equal in value to a province or a fortress, was taken prisoner at Baskenbridge. Nothing could seem, indeed, more forlorn than the aspect of American affairs at this period, to those who forgot, that it was still more difficult for Britain to retain than to make those conquests, painfully as they had been made.

Proceedings of congress.

That the spirit of freedom had not been subdued in the new commonwealth, appeared from the acts of their congress. Though obliged to retreat from the seat of war into Baltimore, they adopted the most vigorous measures: They voted an army of 88 battalions, and gave enlarged, almost dictatorial, powers for six months to their chief general. Far from lowering their tone to Britain, or meeting her indefinite proposals of revising the acts of parliament obnoxious to the colonies, they sent Franklin and other commissioners to treat for alliance and assistance at the court of Versailles.

Proceedings of parliament, October.

The intelligence of the successes of our arms on Long Island and at New York reached England before the meeting of parliament in October 1776, and gave scope to the most boastful predictions of those who anticipated a forcible subjugation of the colonies. By the minority a different use of these advantages was recommended; and the ministry were exhorted rather to concede, while they could with dignity, such terms as would conciliate the vanquished, than drive them to despair. A moment of success, however, was as inauspicious for the arguments of the minority to prevail, as for the claims of America to be admitted. The motions of the Rockingham party being uniformly rejected, the most of its members absented themselves from parliament, and supplies for the future campaign were voted with scarcely the shew of a debate. The members of the secession justified their conduct by declaring, that it was too degrading to be the ineffectual instruments of resisting a system supported by majorities and not by reason, and that they would reserve their exertions for a season, when the national delirium had so far subsided as to afford some hope of advantage. Their secession, however, was but of short duration: they returned soon after the recess, and, with a success to which they had been little accustomed, obliged the minister to limit the suspension of the *Habeas Corpus* act to America, by altering the contents of a suspending bill: a bill which was originally framed with such latitude, that it would have equally subverted the rights of the subject within and without the realm. A vehement contest arose towards the close of the session, when the debts of the civil list, amounting to L. 600,000, were submitted to the house, and a claim for that sum, and L. 100,000 per annum, made upon the generosity of parliament. The minister prevailed in this motion; but when the speaker, Sir Fletcher Norton, addressed the king on presenting the bill, he conveyed a bold and free advice to his majesty in the name of the house, stating their expectations, that what had been liberally granted would be wisely applied. The zealous friends of loyalty, fired with indignation at this freedom, contended, that the speaker had not conveyed the sense of parliament. At Mr Fox's instance, the question was put, (in defiance of this charge,) whether the speaker had spoken the sense of his constituents or not: and here, once more, the minority had a short triumph; for the house, though they would never have voted such an address, chose to support the dignity of their speaker; and a vote of thanks was carried to Sir Fletcher Norton.

Secession of the Rockingham party.

1777.

The health of the venerable Earl of Chatham had for some time prevented him from giving public testimony to his abhorrence of the war; but at the risk of his life, he attended the House of Peers on the 30th of May, wrapt in flannels, and supported by a crutch in each hand. He made a motion for addressing the throne to put a stop to the unnatural contest, by redressing all the grievances of the colonies, and by putting America exactly as she stood before 1763. The justice of unconditional redress he supported on the grounds of Britain having been the unqualified aggressor in the dispute. The policy of such redress, he deduced from the impossibility of conquering the colonies, and from the immediate prospect of France interfering. "You cannot," said he, "my lords, conquer the colonies. I may as well pretend to drive them before me with this crutch. I am experienced in spring hopes and vernal promises, but at last will come your equinoctial disappointments. If it be true, as ministers say, that no engagements are yet entered into between America and France, there is yet a moment left; the point of honour is still safe; a few weeks may decide our fate as a nation." The peers in administration repeated their arguments against concession of any kind, and denied any danger from France. *The pacific motion, as usual,* was lost. During the session, a memorial was delivered by Sir Joseph York, ambassador at the Hague, to the States General, complaining of the seizure of an English vessel, by an American pirate, within cannon shot of the Dutch island of St Eustatia, and of a salute given by the fortress to a rebel flag. The memorial was couched in haughty and peremptory language, and denounced immediate vengeance if satisfaction should be denied. The Dutch, though they declined giving an answer to our ambassador, and complained, through their resident in London, of the tone of menace which pervaded his majesty's memorial, disowned the conduct of the governor of St Eustatia, and recalled him; but the utmost coolness from this time subsisted between the courts of London and the Hague.

The gloomy state of American affairs, as they appeared at the close of the former year, was gradually retrieved by Washington, after his retreat behind the Delaware. Perceiving the cantonments of the British widely extended, "Now is the time," said that sagacious general, "to clip their wings, while they are so spread." On the morning of the 26th of December 1776, he crossed the Delaware above Trenton, and marching with his whole force, not exceeding 3000 men, in the midst of a storm of hail and snow, he surprised three regiments of Hessians, and made them prisoners. In the evening he repassed the Delaware, and having entered Philadelphia in triumph, took possession of Trenton. Here he was menaced by the advance of the British from Princetown; but in the dead of the night, (January 2d, 1777,) he silently withdrew his troops, leaving fires burning in his camp, to deceive the enemy, and reaching Princetown by a circuitous route, surprised a brigade of British infantry, (17th, 40th, and 55th regiments,) whom he repulsed with considerable loss. Lord Cornwallis retreated precipitately to Brunswick, and the fortune of the war seeming to turn, the militia throughout the Jerseys, encouraged, by recent success, and enraged at the oppression of the soldiery, rose by general consent, and regained possession of the most important quarters. The early part of the campaign of 1777 was marked by no events of more importance than the mutual destruction of stores and magazines. At Courtland Manor, and at Danbury, the British detachments were successful in these objects; and at Saggs harbour in Long Island, the enemy made severe retaliation. After a long delay, General Howe entered the Jerseys in full force, in the month of June, and endeavoured, by every feint that he could practise, to bring Washington to action. But he found it impossible to entangle the American Fabius. Washington, indeed, once advanced as Howe retreated; and, leaving his strong camp at Middlebrooke, came forward to Quibbletown, to be near his enemies for the sake of observation: but when the British returned to the charge, he fell back immediately to the former strong position; and Lord Cornwallis, who had come round by the right, in hopes of surprising him, found the passes of the mountains fortified, and was obliged to retire. Howe, in despair, once more abandoned the Jerseys, making his retreat with havock and ruin, and fully acquitting himself of any suspicion of partiality to the enemy. Another project was yet to be tried. On the 23d of July, the whole army was embarked, leaving only a small force behind at New York, and was brought round, after a tedious voyage, to the head of Chesapeak Bay. Washington, contrary to his usual policy, chose to hazard a battle, and to dispute the passage of the river Brandywine, which lay in the intended route of the British towards Philadelphia. The action was favourable to the British; but the approach of night prevented them from pursuing its advantage. Thirteen hundred of the Americans were killed, wounded, or taken; among the wounded was the young Marquis de la Fayette, who had recently entered as a volunteer in the service of the commonwealth. In consequence of this victory, General Howe entered Philadelphia, and passed the Schuylkil without opposition. The American general, at the distance of sixteen miles, held a strong position on the same river, and keeping a watchful eye on the enemy, thought he could surprise them by a nightly march to Germantown. At this place he risked another battle on the 3d of October; he failed in the attack, but the British sustained a loss of 500 men. Philadelphia was now in our hands; but the possession of it was rather dangerous than advantageous, without the command of the river Delaware; and the navigation of that river was impeded, both by machines which the Americans had sunk, and by a fort at the junction of the Schuylkil and Delaware, called Redbank, which a body of Hessians, in endeavouring to storm, were repulsed with great slaughter. As Lord Howe, however, had come round with the fleet, in order to act in conjunction with the army, the shipping were employed, though after many disasters, with more effectual force, the enemy evacuated their works, and the river was at last cleared. But it was by this time the middle of November, and the season for action had elapsed.

Campaign in Canada.

But these events in the south were prosperity itself, compared with the issue of the northern campaign. After the evacuation of Canada by the Americans, in the summer of 1776, the incredible exertions of the British enabled them to drive the enemy from Lake Champlain. In an engagement between the two fleets, memorable for being conducted on both sides by land officers, General Arnold was completely defeated, and the Americans, after abandoning Crown Point, concentrated themselves at Ticonderago. General Carleton, after his victory over Arnold, had led his troops into winter quarters, and from his former conduct, sanguine expectations were formed of his success in the ensuing campaign, when, much to the public astonishment, General Burgoyne arrived in the spring to supersede him. His object was to form a line of communication between New York and Canada. The first success of his career formed but too brilliant a contrast with its conclusion. The Americans, unable to resist him, abandoned Ticonderago, and left behind them an abundance of stores. Their naval force at Skenesborough was destroyed, and Burgoyne, after a march of incredible labour and perseverance, fixed his head quarters at Fort Edward. In conveying his army with all its heavy artillery thus far, he had traversed morasses of prodigious extent; and during the latter part of his march, had been obliged to construct forty bridges in the space of only twenty miles. After abundance of labour, his army at last came in sight of the North River, which promised many facilities of conveyace to Albany; but an American army was also before him, and collecting on all sides. His provisions were reduced, and a corps which he detached to seize some magazines of the enemy at Benington and Fort Stanwix, were cut to pieces. In this perilous state, whilst he was in vain dispatching requests for General Clinton to come to his aid, he was attacked on the 19th of September by the army of General Gates, and, in a battle, which lasted from noon till sunset, the British had the bare advantage of keeping the field. General Clinton having learnt the state of the northern army, made an effort to push up the North River, and relieve it. He found it impossible, and Burgoyne, with a hostile force forming on his rear, was left to his fate. On the 7th of October, an action more fatal to the British than the former, and in which the British camp was nearly taken sword in hand by the provincials, obliged this forlorn body to return to the heights behind their former encampment, and from thence to Saratoga. Here Burgoyne found the passes and the navigation of the river entirely possessed by the enemy. A nightly retreat to Fort Edward only remained; but while the measure was in agitation, intelligence was brought that the fords and high

Aug. 15.

grounds on the way to that position had also been seized. Three days subsistence only remained in the camp, and it became necessary to sign *a convention* with General Gates, that the British troops should lay down their arms, on condition of being transported to Britain not to serve more during the war. Such was the catastrophe of an army, consisting, at its departure from Canada, of more than 10,000 men, but now reduced by the sword and hardships, to little more than half that number.

General Burgoyne lays down his arms.

Meeting of parliament 20th November.

The parliament assembled on the 20th of November. In opposing the address proposed by ministers in the upper house, Lord Chatham delivered his memorable philippic against the employment of Indians in the war; but though the house listened for the time, as if electrified by his eloquence, it produced no change on their real temper or votes. The 3d of December was memorable, in the lower house, for the disclosure of the fate of Burgoyne. The minister acknowledged it with dejection, and even with tears; and, amidst the torrent of sarcasm and invective with which he was assailed by an increasing opposition, he entreated the house, with evident humiliation, to suspend their censures, till an impartial investigation of the business should take place. During the recess of parliament, the subscriptions that were raised by individuals for the support of the war, and the regiments which were thus furnished to government by several of the principal towns, seemed to reanimate the drooping spirits of ministers. It was evident, however, that their parliamentary strength had declined from the late disaster. On Mr Fox's motion for abandoning the plan of conquering America, the minority divided 165 against 259; and although the various other motions made by that speaker, as well as those of Mr Barre and Mr Burke, were rejected, the minister, by offering a second plan of reconciliation, made a virtual concession of past errors, which could not but strike his most determined adherents. The substance of this plan was brought before the house in two bills, on the 17th of February 1778.[*] To anticipate a little in the order of narration, the commissioners, Governor Johnstone, Lord Carlisle, and Mr Eden, who were empowered by these bills to treat with the congress, arrived at Philadelphia in the month of June; and, at the outset, made concessions far greater than the Americans, in their petitions to the king, had ever requested. They offered, that no troops should be kept in the States without their consent: they offered, in fact, to establish a perfect freedom of legislation and internal government, and every privilege to America short of total separation. But the secretary to the British commission was refused a passport to congress, and he was obliged to forward his papers by the common means. The substance of the answer of congress (delivered by their president, Henry Laurens) was, that the United States of America being independent, would treat with Britain for such terms of peace and commerce, as might be consistent with their other treaties already subsisting. As a solid proof of our sincerity to treat, they required *their* independence to be acknowledged, and *our* armies and fleets to be withdrawn. In the mean time, a treaty of amity and commerce had been concluded between France and America, and the former power had completed her preparations for assisting the youthful commonwealth. In the month of April, Count D'Estaign was dispatched with twelve ships of the line from Toulon. Admiral Byron, with a fleet from Portsmouth, was ordered to sail after him; but as the destination of the Frenchman was supposed to be the Delaware, and as the fleet of Lord Howe in that quarter was unable to protect our operations, if the hostile fleet should arrive there, the commissioners for peace had brought out to America, an order for our own army to evacuate Philadelphia, and repair to New York.

1778.

Concessions held out to America.

Leaving for a moment the operations of the war, it may be proper to notice a division between the leaders of opposition in parliament, which may certainly be reckoned to have contributed to protract the duration of the war. The Marquis of Rockingham, and the whole Rockingham connection, maintained the necessity of admitting the independence of America. It was too late (they argued) to conciliate: it was impossible to overwhelm the colonies by force; and to persist in attempting it, was only to accumulate our debt, and accelerate our ruin. The Earls of Chatham, Shelburne, and Temple, who had, unhappily for the Whig interests, kept up a separate party, deprecated the concession of independence as ruinous and disgraceful. In one of the debates during the spring session of the present year, when the Duke of Richmond moved to address the king for renouncing the impracticable object of the war, the Earl of Chatham came to the house (declaring with a melancholy prediction, that it was probably for the last time), to express his indignation at the idea of yielding up our sovereignty. He rejoiced that the grave had not closed over him, before he had lifted up his voice against the dismemberment of the empire. The Duke of Richmond having spoken in reply, Lord Chatham rose and endeavoured to give vent to some great idea that seemed to be labouring in his breast; but, unable to utter a word, he fell amidst the arms of his friends in a convulsive fit, and being conveyed to his villa at Hayes, in Kent, expired, after a few weeks, on the 11th of May. It would be rash to pronounce upon the consistency of so great a character, or to suppose that his views respecting America were not changed on grounds deserving serious consideration. Yet it seems at first sight difficult to reconcile his opinions on this momentous subject. If we could not force our taxes upon America, it is hard to conceive, that we could wrest from her her independence.

The spring of 1778 was far advanced, before the contending armies began to act in America. Count D'Estaign's fleet entered the Delaware in the beginning of July. A short time after, the British army, now commanded by Sir Harry Clinton, (Sir William Howe having resigned,) began their march through the Jerseys, from Philadelphia to New York. As they proceeded with an enormous baggage, extending twelve miles in length, they were assaulted on the 28th of June, in the vicinity of Monmouth Court-house, by the van of Washington's army. In two attacks, the Americans were repulsed: the British rangers and light infantry, on the other hand, were obliged, from fatigue, to desist from an attempt on the main body of the enemy. The approach of night left both armies with nearly equal loss; but in the morning, the British army had retreated, and reached New York without farther molestation.

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[*] 1. A bill for removing all doubts and apprehensions with regard to the taxation of America, by the parliament of Great Britain.

2. A bill to appoint commissioners to treat with the Americans.

D'Estaign, missing Lord Howe's fleet in the Delaware, followed him to Sandy Hook; but the judicious position of the British admiral, and the difficulty which the French dreaded of passing the bar of the harbour of New York, saved our inferior force till Howe was joined by the squadron of Byron; and sailing after his antagonist, obliged the French and Americans to desist from an attempt which they had made upon Rhode Island. Owing to tempestuous weather, the hostile admirals, though mutually willing to engage, could not come to a general action. Disconcerted in his views upon the continent, the French admiral turned his efforts to the West Indies, and assisted the Marquis de Bouille in taking the Island of Dominique, whilst the British enjoyed an equivalent triumph in the conquest of St Lucia.

On the continent of America, the war still raged with unremitted malignity;—the destruction of the beautiful settlement of Wyoming in Pennsylvania, by which a terrestrial paradise was converted into a frightful waste, and men, women, and children butchered indiscriminately by the Indians, is an event of horrible memory in this year's campaign. In a more civilized mode of warfare, Major-General Grey was so successful, as to destroy 70 sail of shipping and immense stores at Fair Haven, in New England, and to bring off an immense booty of sheep and oxen from Martha's vineyard, in the vicinity, for the use of the army at New York. On the banks of the North River, the same officer surprised, naked and asleep, a whole regiment of American light-horse. Quarter was refused; and if we may credit the solemn asseveration of the American congress, in remonstrating on this cruel transaction, the regiment were *massacred in cold blood*.

A squadron, under Sir Hyde Parker, having on board a body of troops, commanded by Colonel Campbell, sailed for East Florida, from the head quarters of Sir H. Clinton, and on the 23d of December arrived in the Savannah. The force of the colony was unable to oppose them, and the town of Savannah fell into their hands. General Prevost soon arriving, with a large reinforcement, took the first command, and prepared to push his conquest over the province. When the design of France to assist America had become unquestionable, Admiral Keppel was appointed commander of the channel fleet, and sailed from Portsmouth, in June, with 20 ships of the line. War had not been proclaimed, nor had reprisals been ordered; but coming up with two French frigates, the admiral thought himself justified in taking them, and learning, from papers on board one of the captured vessels, that the French had, in Brest, thirty-two ships of the line, he returned to port, and strengthened his fleet to thirty sail of the line. On the 27th of July, the fleets met, and fought for three hours. The French lost above 1000 men, the British about 500. This would have been a proud day for Great Britain, if Admiral Sir Hugh Palliser had obeyed the signals of the commander in chief, and come up with his squadron to make the victory decisive. His neglect of this duty, which the delicacy of Keppel forbore to mention directly, in his dispatches, came to light when the particulars of the battle were discussed in England. Palliser, whose misbehaviour had tarnished the glory of the day, was tried, and only slightly censured by a court martial. The venerable Keppel was also brought to trial, but he was honourably acquitted.

Naval engagement.

Parliament meets 26th November.

The session of parliament commenced on the 26th of November 1778. In the addresses, the most vigorous support was, as usual, promised, by great majorities, towards the prosecution of the war. The ministers continued successful, throughout the session, in baffling the successive motions that were made by the Rockingham party, to pass a censure on the principles, as well as the practical and particular conduct of the war; but the numbers of the minority were, on several great occasions, formidably increased. When Mr Fox moved for a vote of censure on the conduct of Lord Sandwich, the first lord of the admiralty, for having ordered Admiral Keppel to sea, with a fleet inferior to that of France, by twelve ships of the line, besides a great inferiority in frigates; his motion was supported by 174 votes to 246. It required, indeed, the whole force of the crown influence to protect that minister from the odium which his encouragement of the venerable Keppel's prosecution, and his general incapacity as a war minister, had excited. In the present question on his conduct, the testimony of Lord Howe was forcibly delivered against that minister; and that officer, already distinguished for a naval campaign of unexampled skill in the West Indies, declared, that under such council as the present ministry, he should deem it forever impossible to serve his country. In a motion, which Lord Bristol made in the house of peers, similar to Mr Fox's in the lower house, for Lord Sandwich's removal; his Lordship established, that seven millions of money had been given to the support of our navy, during the last seven years, beyond any former period, and that, during that time, the decrease and decline of the navy had been in the inverse ratio of its expenditure. The Howes, having obtained a reluctant consent of the minister, that a parliamentary enquiry should be instituted, respecting their conduct in America, the result was, a declaration by the committee, that at no period had the force sent out to America been sufficient to subdue the provincials, and that there was no further prospect of success in attempting the conquest of America. The house, however, continued voting supplies, for this declaredly impracticable object.

War with Spain.

Before the close of the session, his majesty announced to parliament, that Spain had been added to the number of our enemies. By the manifesto of the new enemy, it appeared, that her mediation had been asked by Britain, and obtained. When the terms of peace, however, came to be discussed, it was obvious that Spain, as well as France, were determined to make the recognition of American independence the basis of peace. Spain, however, declared her unwillingness to have commenced hostilities, even after the rejection of this basis, and taxed the British government with injuries and hostilities, exactly amounting to an hundred acts. Their assiduity in collecting such a number of pretexts, bespoke no great confidence in the strength of any one of them.

Changes in administration.

During the recess of parliament, the Earl of Stormont succeeded the deceased Lord Suffolk as secretary of state. The Earl of Weymouth, a second time, resigned the seals of the southern department, to the Earl of Hillsborough; the Earl Bathurst succeeded the Earl Gower, as president of the council; and the Attorney General Thurlow, was created lord chancellor.

Proceedings in America.

The commander in chief, in America, continued to conduct the war, by indecisive and predatory expeditions, either unable or afraid to bring the main force of the enemy to a general action. Sir George Collier and General Matthew made a descent upon Virginia, and laid the town of Suffolk in ashes. Governor Tryon, accompanied by the former officer, plundered and burnt Newhaven, in Connecticut, and some other places; and Collier succeeded in destroying a small squadron of the Americans, at the mouth of the river Penobscot, in New England. The Americans, on the other hand, were not without their successes. Two important posts on the north river, Stoney Point and Verplanks, had been carried by Sir Harry Clinton, in person, and had been diligently and strongly fortified. These places were recovered, by the troops of General Wagne, with circumstances of remarkable gallantry. The provincials carried the fortified lines of the British, with fixed bayonets, in the face of a tremendous fire; and disdaining to retaliate, for former cruelties, they signalized their victory no less by clemency than courage. At Paulus Hook, they surprised the British in a similar manner; but a better defence being made, they retired, though not without bringing off 200 prisoners.

July 15.

In the West Indies, the island of St Vincent's was captured by D'Estaign; and Grenada, though bravely defended by the efforts of Lord Macartney, yielded to the arms of the same invader. A warm but indecisive action took place, between the fleet of D'Estaign and the British, under the Admirals Byron and Barrington; after which, the French Admiral anchored off the town of Savannah, and attempted, in conjunction with the American General Lincoln, to take that town; but was repulsed, by the British lines, with great gallantry.

Charlestown taken by the British.

1780.

On the 26th of December 1779, Sir Harry Clinton sailed, with the greater part of the army, from New York; and, in the spring of the succeeding year, arrived before Charlestown, the capital of South Carolina. The city was defended by General Lincoln, in person, at the head of a numerous garrison, but yielded, on the prospect of a general assault, to the summons of the besiegers, and 6,000 of the continental troops, militia and sailors, became prisoners of war. Leaving Lord Cornwallis to prosecute the war in that quarter, Sir Henry Clinton returned, after the capture of Charlestown, to his former head-quarters. Cornwallis immediately crossed the Santee, and carried the terrors of the British arms to the borders of North Carolina, cutting off several corps of the Americans; in which expeditions his lieutenant-general, then Colonel Tarleton, distinguished himself by peculiar bravery.

During these transactions, considerable alarm was excited in England by the junction of the French and Spanish fleets in the Channel, which took place soon after the Spanish declaration of war. Sixty-five ships of the combined line, with a prodigious cloud of frigates and fire-ships, swept the Channel from shore to shore; obliged the British Channel fleet, under Sir C. Hardy, to retire into harbour; and, menacing the British coast with impunity, while Plymouth, by the negligence of ministers, was left so defenceless, that it escaped destruction only by the ignorance of the enemy respecting its true situation. On the approach of the equinox, the hostile fleet retired. The most remarkable result of the appearance of their vast armament on our coast was, the vigour and resolution with which it inspired the people of Ireland, who, seeing themselves neglected by England, their commerce unprotected, and their grievances unredressed, determined, by one effort, both to defend their country, and to assert their political rights. In a short time 50,000 volunteers were disciplined and equipped. By resolutions against the use of British manufactures, they taught England the immediate expediency of coming to an agreement with their demands; and these were extended, not to a partial, but a complete emancipation of their trade.

The subject of economical reform was pursued with great spirit during the session of 1779–80, in both houses; by the Duke of Richmond in the peers, and by Mr Burke in the commons.* Their motions were rejected; but the 6th of April was signalized by a victory of the opposition, whose numbers had of late increased, as the aversion of the nation to the principles of the war, and to the system of corruption which had so long given sanction to it, daily grew more apparent. Mr Dunning moved, "that the influence of the crown had increased, was increasing, and ought to be diminished." This was passed by a majority of eighteen; and in several subsequent motions the minister found himself in a minority. An unusual recess of parliament, however, gave the court time to recover from this blow. During that interval they rallied their broken ranks, and brought so many deserters back to their standard, that at the next debate, on addressing his majesty that parliament might continue to sit till the petitions of the people for reform were answered, they recovered a majority of 51. Mr Fox, on this decision, rose with indignation, and exposed the shameless inconsistency, the breach of a solemn engagement, of those who had thus basely deserted the cause of reform.

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* In his celebrated bill for regulating his majesty's civil establishment.

While these extraordinary turns of fortune attended the contest of parties, an event took place, which, for a time, overwhelmed party spirit itself in the danger of the state. After the passing of a humane bill in favour of the Catholics, associations, originating in Scotland, had taken place over the whole kingdom, to petition the legislature for its repeal. Lord George Gordon, an insane branch of a noble family of Scotland, and a member of the lower house, headed these associations. On the day appointed for the grand association in London to deliver their petition to parliament, the rabble assembled, by his invitation, to an immense number, in St George's Fields, and proceeded to Westminster, where they surrounded, insulted, and besieged the two houses. The arrival of the guards with difficulty protected parliament; and the mob, on that day, contented themselves with demolishing some chapels of the Roman Catholics. During several succeeding days, the riots and burning of houses continued unchecked. The members of parliament who continued to meet, were exposed to insult and outrage on their way to Westminster, till at last they determined to adjourn, till the arm of executive authority should rescue them from danger. Encouraged by impunity, the mob proceeded in the work of devastation,—emptied the prisons, destroyed and pillaged an immense number of houses, and at last threatened the Bank itself. London was seen, from one spot, blazing in thirty places. Houses and property to the amount of millions were sacrificed to their fury. The shops were shut, and all business was at a stand. The arm of the civil power had hitherto been shamefully idle; but his majesty declaring with spirit, that the executive power should interfere, orders were given to fire upon the rioters; and detachments were brought from many miles round London. Several hundreds of the insurgents were killed by the platoons of the military, and in a few days tranquillity was restored.

Lord George Gordon was arrested on a charge of high treason, and conducted under a strong escort to the Tower. He was acquitted, on proofs of insanity, while many of his meaner associates atoned for their crimes on the gallows. To complete the satisfaction of public justice, the lord mayor, whose neglect of timely interference was regarded as a principal cause of the latter excesses, was prosecuted and convicted. The session was closed by a speech from the throne, on the 8th of July; and, in September, a new parliament was called.

To resume the thread of the narrative of transactions in America. The fall of Charlestown having apparently secured to us the whole province of South Carolina, and Colonel Tarleton's detachment having defeated the fugitive American army, General Clinton returned to New York, leaving Lord Cornwallis behind him to prosecute the conquest of the northern provinces. The American corps were, however, recruited by strong reinforcements, and, uniting under General Gates, gave battle to Lord Cornwallis at Camden, near Lynchis-creek. Here they were severely defeated, and for a time dispersed; and a way was opened for the victors to North Carolina; while numbers of American partizans, by force and persuasion, were compelled or induced to join the royal standard. While this victory was hailed by the sanguine partizans of Britain as decisive, the defeat of several detached corps of the British army quickly turned the tide of fortune. Major Ferguson was cut off at King's Mountain, and his army obliged to surrender, by a body of American horsemen. Colonel Tarleton with difficulty, and by incredible bravery, cut his way through the enemy, and retired from active hostilities. Lord Cornwallis was obliged to retreat to the south. The war in the northern provinces of America seemed, through the whole of the summer of 1780, to be nearly at a stand. On the 10th of July, a large body of French troops, under General Rochambeau, arrived at Rhode Island. While the assistance of this new ally was rendered ineffectual by the blockade of a British fleet under Admirals Graves and Arbuthnot, the American general Arnold, proving faithless to the cause of the United States, engaged to deliver into the hands of the British the important post of West Point, which was called the Gibraltar of America, and was the repository of their most valuable stores. Major André, a young officer of high character and bravery, who was selected by General Clinton to conduct the negotiation with the apostate American, by an unfortunate mistake fell into the hands of the enemy's scouts while he was within their lines, was brought to trial, and executed as a spy. Arnold escaped to the British lines, and was made a brigadier-general. When the winter set in, the army of Clinton was confined to New York, and its dependencies. The French troops remained at Rhode Island; and the army of Washington, distressed by many privations, continued on the mountainous grounds adjacent to the North River.

Armed neutrality.

The year was memorable for the declaration, by the powers of Europe, of that armed neutrality, by which they engaged to resist the British in the exercise of the right of searching neutral vessels. The intentions of Holland, which before had been suspicious, were brought to a proof by the discovery of a treaty with America, which was thrown overboard one of her captured vessels, but was rescued by the intrepidity of an English seaman before it sunk. Letters of reprisal were issued against her on the 20th of December.

Blockade of Gibraltar.

The war between Britain and Spain had scarcely commenced, when the blockade of Gibraltar was formed by sea and land. Sir George Rodney was sent out with the command of a fleet to the relief of that place. After capturing a squadron of seven ships of war on the north of Spain, he next engaged a fleet of fourteen sail of the line off Cape St Vincent, where he captured and destroyed several of the enemy's largest ships; and, after effecting the relief of Gibraltar, proceeded to the West Indies. In this quarter he had an indecisive engagement with the French admiral De Guichen, (on the 17th of April,) in which the enemy retired, and, from unfortunate circumstances, could not be pursued. The Spanish governor of Louisiana reduced the British settlements on the Mississippi, and made considerable progress in West Florida. Our East and West India merchant fleets were captured in the autumn of the year: a

Naval engagement.

British East and West India fleets taken.

other party, which, since the death of Lord Chatham, had regarded Lord Shelburne as its political leader.* The Marquis of Rockingham was appointed first lord of the treasury; the Earl of Shelburne and Mr Fox, secretaries of state; Lord Camden, president of the council; Lord John Cavendish, chancellor of the exchequer; the Duke of Grafton, privy seal; the Duke of Richmond, master of the ordnance; Lord Keppel, first lord of the admiralty; General Conway, commander in chief; Mr Burke, paymaster of the forces; Lord Thurlow was continued lord chancellor; and Mr Dunning, created Baron Ashburton, was made chancellor of the Duchy of Lancaster. The first act of the new administration was to accept an offer already made by Russia, of her mediation between Holland and Great Britain. This offer their High Mightinesses did not chuse to accept; but negotiations for a general peace were almost immediately commenced, and Mr Grenville was sent to Paris with full powers to treat with all the parties at war.

In consistency with the principles which they had avowed, the new ministry began their career by the most popular and promising acts of reformation. Their resolutions for the better management of Indian affairs, are too complicated to be detailed in the present sketch, and we must refer the reader for them to a different article: (See India.) A retrenchment in the expenditure of the civil list was accomplished. The independence of the Irish parliament was declared. Two acts were also passed, excluding revenue officers from parliamentary elections, and contractors from sitting in parliament; and ministers, to record those intentions which unhappily they were never suffered to fulfil, moved, in a committee of the whole house, a series of resolutions for economy in the revenue, and the abolition of useless offices, with which they were to have proceeded very early in the ensuing session.

To return to the events of America: no action of any importance took place after the capture of the British army at Yorktown. The Spaniards, embarking from Cuba, invaded and took from us the Bahama islands. Nevis, Montserrat, and St Kitts, had been taken from us before the end of the former year; and Jamaica, the great object of Spanish ambition, was threatened by the combined fleets of France and Spain, which, if successful, would have poured upon it a land force of 20,000 invaders. To prevent the junction of the hostile fleets, Admiral Rodney fortunately reached the West Indies in the month of February, and brought the fleet of De Grasse to action, between the islands of Guadaloupe and Dominique, while the Frenchman was attempting to reach the Spanish fleet at Hispaniola. Rodney's force consisted of 36, De Grasse's of 34 ships of the line. After a glorious action, which lasted with few intervals, from seven in the morning till night, the British had taken or destroyed eight capital ships of the enemy, and among these De Grasse's own ship, the largest that had ever been built in Europe.

The island of Minorca, after a siege of 171 days, surrendered to the power of Spain. Its emaciated garrison, scarcely able to pile their arms at surrendering, gave up rather to famine and sickness, than to the bravery of their captors, who were commanded by the Duke de Crillon, and amounted to 16,000 men.

Siege of Gibraltar.

The defence of Gibraltar was one of the few brilliant events of this disastrous war. A sortie of the garrison, during the former year, had destroyed the principal works of the besiegers; but the arrival of the conqueror of Minorca, with 20,000 French and Spanish troops, the presence of a powerful fleet, and the invention of floating batteries, which were deemed impregnable, gave new hopes to the besiegers. On the 13th of September, the combined fleets having anchored the preceding day between Orangegrove and Algesiras bay, moored about 1000 yards from the walls of the garrison, and opened a fire from 400 pieces of artillery. The garrison directing their fire chiefly on their battering ships, beheld, for some time with uneasiness, their heaviest shells rebounding from the roofs of those bulwarks, while the largest cannon balls made no visible impression on their hulls. Governor Elliot, however, was still confident in the effects of the heated balls, which had been ascertained in former experiments, and encouraged his men to redouble their efforts. Symptoms of confusion and combustion were at last discovered on board the Spanish admiral's chief battering ship. Towards evening a general disorder was visible in their line; their fire slackened, and almost ceased before night. During the night, their signals and cries of distress, and the arrival of a floating wreck, with only twelve survivors, gave sufficient proof of what the red hot balls had produced. An hour after midnight, the Spanish admiral's ship was in one blaze. Others succeeded to rise in conflagration, till in the progress of the succeeding morning the chief business of the British, besides completing the destruction of the gun-boats, was to save numbers of the crews of the hostile vessels from the sea, or from destruction by fire. The enemy lost 2000. The garrison had not an hundred killed. The sole hopes of the enemy now rested on their fleet, which was still superior to that of Lord Howe: yet that gallant admiral sailed boldly into the place, and returned, after a partial encounter with the enemy's ships,—having performed, in relieving the garrison before so superior a force, an act which astonished all Europe.

Change of ministry.

The happy prospects which the nation enjoyed in a skilful and popular cabinet, were unfortunately clouded within a year, by the death of the Marquis of Rockingham. Of the Whig parties, who were more than ever divided by this event, that of the Earl of Shelburne was the most agreeable to the crown, and that nobleman was appointed to succeed the Marquis as first lord of the treasury; Mr Fox, Lord John Cavendish, and Mr Burke, declaring that they could not act with a cabinet in which the principles of the old system were to be revived, immediately resigned. Mr Pitt was appointed chancellor of the exchequer, and other vacancies were filled up by the friends of the Earl of Shelburne.

The treaty, which had been begun by the former administration, was brought to a conclusion by the present. On the 30th of November 1782, provi-

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* Though the Shelburne party coincided with the other opponents of ministry in their present efforts against the original makers of the American war, they spoke with great caution on the subject of its continuance, and some of them openly reprobated the idea of conceding the independence of America.

Peace with America signed.

sional articles of pacification with America were signed at Paris; and on the 20th of January 1783, they were signed with France and Spain. The thirteen United Provinces were declared free and independent states, and by a boundary very favourable to America, the whole country southward of the lakes on both sides of the Ohio, and eastward of the Mississippi, was ceded to the colonies, with a full participation of the fisheries on the banks of Newfoundland and the Gulf of St Lawrence. In return for this concession, the Congress engaged to recommend to the several States to provide for the restitution of the confiscated estates of the royalists, a recommendation which proved, as might have been foreseen, entirely nugatory. By the treaty with France, Great Britain guaranteed to that power the island of Tobago, and restored St Lucia; also the settlements of Goree and Senegal, in Africa; and the city of Pondicherry, with our conquests in the East, and some additional territory. Our claims respecting Dunkirk were expressly relinquished. France, on her part, agreed to restore all her valuable and important conquests in the West Indies, Tobago only excepted. His Catholic majesty was allowed to retain Minorca and West Florida, East Florida being also ceded in exchange for the Bahamas. The preliminaries with Holland were subscribed much later in the year. By these the States General yielded and guaranteed to his Britannic Majesty the town of Negapatam in the East Indies, with its dependencies; the restitution of it being, however, left open to be treated for on the offer of a just equivalent.

Sept. 2.

Coalition between Mr Fox and Lord North.

When the terms with France, Spain, and America, were submitted to parliament, they underwent the severest animadversions. It was now that a coalesced opposition sprung up, which, while it astonished the nation by its novelty, for a time overwhelmed all resistance. Mr Fox, in his indignation at the conduct of the Shelburne party, did not hesitate to unite his strength with his old and avowed antagonist, Lord North. Mr Fox defended the union, by declaring, that the question of American independence being now at rest, he had no desire to perpetuate his enmities with a satesman, whose views were directed, like his own, to displace from power a ministry composed of men who had been unfaithful to their principles; and his object, he avowed, was, by the joint force of their friends, to ensure a great and popular administration. The nation at large viewed this coalition with disapprobation. Our business is only to record its effects. Such was the strength of the united opponents, that in two instances they outvoted the ministry. A motion for addressing his majesty for a new choice of servants was victoriously carried; and on the 2d of April the cabinet council was thus formed anew. The Duke of Portland was appointed first lord of the treasury; Lord North and Mr Fox, principal secretaries; Lord John Cavendish, chancellor of the exchequer; Lord Keppel, first lord of the admiralty; Lord Stormont, president of the council; and the Earl of Carlisle, keeper of the privy seal. If the coalition which had formed the present ministry was unpopular, the career of their most formidable opponent, Mr Pitt, was at this time calculated to excite the highest expectations in the public of an enlightened and patriotic statesman. He stood forward as the most active champion of reform. In a former session he had made a general motion for an enquiry into the state of representation. He now brought forward a specific plan for adding an hundred members to the county representation, and abolishing a similar number of the obnoxious boroughs. His plan, though supported by Mr Fox, was negatived by a large majority.

Formation of a new ministry.

For some time the total derangement of the finances of the India Company, and their utter incompetency to govern the vast territories of which they had obtained possession, by very questionable means, had become too evident to admit of contradiction. The evil was notorious; the only difficulty was to devise an adequate remedy. On the 18th of November, Mr Fox introduced a bill, by which he proposed to take from the directors and proprietors the entire administration of their territory and commercial affairs, and to vest the management of them in the hands of seven commissioners irremoveable by the crown, except in consequence of an address from either house of parliament. The act was to continue in force for four years, and was accompanied by a second bill, containing regulations for the future government of India. The greatest commotion was, however, excited by the disclosure of this plan; while it was on one side of the house extolled as a master-piece of genius, virtue, and ability, it was on the other reprobated as a violation of chartered rights, and an ambitious design of ministers to make themselves immoveable and despotic, by assuming the power and patronage of India. The India Company, the city of London, and other chartered bodies, petitioned or entered into resolutions against the bill. It passed the Commons, however, though in the Lords it was rejected by a majority of 95 to 76. This rejection is to be traced to a proceeding deservedly reprobated. On the 11th of December, Earl Temple demanded a conference with the king, in consequence of which a card was handed about, intimating that his majesty allowed Earl Temple to say, that whoever voted for the India bill, was not only not his friend, but would be considered as his enemy; and if these words were not strong enough, Earl Temple might use whatever words he might deem stronger or more to the purpose. A change of ministry was immediately resolved upon; and on the 18th of December, a message from his majesty arrived to the two secretaries of state, demanding the seals of office. In a few days, Mr Pitt was appointed first lord of the treasury and chancellor of the exchequer; the Marquis of Carmarthen, and Mr Thomas Townsend, (created Lord Sydney,) secretaries of state; Lord Thurlow, lord chancellor; Earl Gower, president of the council; the Duke of Rutland, lord privy seal; Lord Howe, first lord of the admiralty; the Duke of Richmond, master of the ordnance; and Mr Henry Dundas, treasurer of the navy.

The majority of the House of Commons, however, still adhered to the dismissed ministers: they addressed the crown, to pray that the alarming reports which had gone forth, of an intended prorogation, or dissolution, might not be realized; to which they received an explicit answer from his majesty, that after their adjournment they should not be disturbed, by being either prorogued or dissolved. When the house assembled, after the Christmas recess, the majorities of the opposition still continued, and exhibited, at once, the novel spectacle of a minister holding his place in contempt of the voice of the commons, and of an opposition binding up the hands of the executive, by withholding their assent to payments being issued from the bank, or the exchequer, for public service. It was even moved in the house, and declared, that the continuance of the present ministry would be injurious to his majesty, and to the people; but the minister still kept his place. The king, by a message to the Duke of Portland, delivered indirectly through the medium of Mr Pitt, expressed his desire that an interview might take place, between his Grace and the young premier, for arranging a new plan of administration, on fair and equal terms. The Duke required that he might be permitted to construe this message as a virtual resignation on the part of Mr Pitt. This interpretation was refused; the supplies were postponed, and ministers continued to be outvoted by their opponents. The peers, however, were roused, by this obstinacy of the lower house, to pass two resolutions, expressing their disapprobation of the conduct of the commons, and their determination to support the crown in the choice of its ministers.

It is difficult to pronounce what would have been the issue of this contest, if the wishes of the crown and the commons had continued to be fairly balanced against each other. But the public voice was decidedly expressed in favour of the new minister, whose popularity was recorded in the numerous addresses in his favour from every quarter of the nation. The majorities of the opposition, in the commons, were also visibly declining, and their last remonstrance was carried by a solitary vote. The measures of the coalition grew less bold, as their ranks were thinned by desertion; so that, in March, the supplies were regularly voted, and the mutiny bill passed without a division. Still, however, it was thought unsafe to trust farther to a parliament, from whose resistance the executive had escaped, only by the desertion of temporising members. It was, therefore, in spite of the late promise of his majesty, dissolved on the 25th of March, and a new one convened on the 18th of May.

The elections for the new parliament were wholly favourable to ministers; and so complete was the rout of the coalition party, that of 160 members who lost their seats, nearly the whole were the friends of either Mr Fox or Lord North. The most important business of the first session was the arrangement of a plan for the future government of India. The bill which Mr Pitt introduced for this purpose, was founded on the same principles with one which he had formerly proposed, but which the late parliament had rejected, during their struggles with him, after his first appointment. By this bill, a board of controul was to be established, of which the commissioners were to be of the rank of privy counsellors; they were to be appointed by the king, and removeable at his pleasure. They were to check, superintend, and controul, the civil and military government and revenue of the company. The dispatches, transmitted by the court of directors to the different presidencies, were to be previously subjected to the inspection of the superior board, and countersigned by them. The directors were enjoined to pay obedience to the orders of the board, touching civil and military government, and revenues; and in case such orders, at any time, related to points not connected with these, they were empowered to appeal to his majesty, whose decision was to be final. The appointment, by the court of directory, to the office of governor general, president, or counsellor in the different presidencies, was to be subject to the approbation and recal of his majesty. A high tribunal was created for the trial of Indian delinquents, consisting of three judges, one from each court, of four peers, and six members of the House of Commons, who were authorised to judge without appeal, to award, in case of conviction, the punishment of fines and imprisonment, and to declare the party convicted incapable of serving the East India company. Mr Fox, in opposing the bill, pronounced it, at once, insufficient, insidious, and unconstitutional. It pretended to take a controul over the company without invading their charters; but it did invade their charters, by the enlarged power of the board of controul. Yet it did not transfer that power to the proper channel, to which all power ought to revert to the parliament, but drew the richest servants of the company into a dangerous dependence upon the crown. But Mr Fox, with his accustomed eloquence and powers of discrimination, was unable to excite the general attention to the demerits of the measure in question. The bill had received the assent of the East India company; though slowly and reluctantly given, it was carried triumphantly through both houses, and was the subject of but little emotion without the walls of parliament. The public, who beheld with indifference the whole patronage of India, virtually vested, by one act, in the crown, expressed considerable disapprobation at an act which passed during this session, entitled "the commutation act," by which the ancient duty on tea was lowered, and the deficiency to the revenue made up by a tax upon windows.

Mr Pitt's financial arrangements.

The supplies of the year returned a loan of six millions, which was negociated by the minister, at nearly five per cent., with a douceur, to the subscribers of six lottery tickets, for every thousand pounds. Provisions were made, during the session, for paying off the arrears of the unfunded debt, left at the conclusion of the war, amounting to nearly 20 millions, by other taxes, which, upon the whole, were allowed to be happily and judiciously chosen. The peace which the nation now enjoyed, and the firm hold of his power, which the minister kept, enabled him to bestow his attention on plans of commercial and financial arrangement. On the 24th of January 1785, the session was opened by a speech from the throne, the principal feature of which, was a recommendation to parliament to apply their earnest attention to the adjustment of such points, in the commercial intercourse of Great Britain, as had not been yet finally arranged.

1785.

By a laudable and wholesome bill, which was passed during this year, considerable reformation was effected in the auditing and examining of public accounts, and the regulation of public offices. The balances of the navy and ordnance offices, and of the paymaster of the forces, were ordered to be paid into the bank. Many of the inferior departments of office, or heads of service, were consolidated; and the whole assumed an aspect of regular and rational system.

Provision was made for funding in the 5 *per cent.* stock, the remaining floating arrear of debt, consisting of navy bills and ordnance debentures; fresh taxes, of which the amount was calculated at £400,000. These taxes were passed with slight opposition. One only was particularly obnoxious. This was a tax on retail shops. It was shewn by the whole body of retail traders, that, for obvious reasons, it was impracticable to indemnify themselves for this imposition by raising the price of commodities on their customers; and thus a speedy ruin was threatened to thousands of the most industrious and useful of the trading community. By way of recompense to the shopkeepers, Mr Pitt proposed to annihilate a class of traders, still poorer and less capable of remonstrance; by revoking the licences from all hawkers and pedlars; whom he styled, a pest to the community, and a nursery for illicit trading. Far from being pests to society, it is known how useful these itinerant traders are, to the remote inhabitants of the country. Like all other traders, these men were liable to detection and punishment in the act of illicit traffic; but to prohibit them from the fruits of their honest labour, was justly censured as despotic in principle, and cruel in proportion to the poverty of the sufferers.

Mr Pitt's plan of extinguishing the national debt.
1786.

In the business of the succeeding session, the minister's plan for extinguishing the national debt, holds a distinguished place, and indeed forms an era in the history of the country. The plan was founded on a report, framed by a select committee, who had sat during a part of last year, and who had examined the annual income and expenditure of the state. By the report of this committee it appeared, that the public income for the year 1785, had been £15,379,000, and the expenditure £14,478,000, leaving a surplus of £901,000. This surplus the minister proposed to increase to one million, and to appropriate for ever after this yearly million most sacredly to the exclusive purpose of extinguishing the national debt. Commissioners of the highest respectability were to be chosen for the important service of purchasing in the funds towards the redemption of the public debt. Several savings of expense, and overflowings of revenue, would fall into this fund, which, in the course of 28 years, would produce four millions a year. The propriety of liquidating the national debt being acknowledged on all sides, the motion was carried without a division.

Amendments of Mr Fox and Mr Pulteney.

In the progress of the bill, an amendment was suggested by Mr Fox, and gratefully received by the minister, viz. that whenever a new loan should hereafter be made, the commissioners should be empowered to accept the loan, or such proportion of it, as should be equal to the cash then in their hands; the interest and douceur annexed to which, should be applied to the purposes of the sinking fund. Another clause, enabling the commissioners to continue purchasing stock for the public, when at or above par, unless otherwise directed by parliament, was moved by Mr Pulteney, and carried.

Impeachment of Warren Hastings.

Next to the establishment of the new sinking fund, the affairs of India occupied during this session the principal attention of parliament. The trial of Warren Hastings for alledged crimes and misdemeanours in his government of India, was brought on by Mr Burke, who had for some time held out his threats of impeachment. On the 4th of April Mr Burke came forward fully prepared for the charge, and solemnly exhibited against the late governor, nine articles of accusation, which in the succeeding week were completed to twenty-two. The chief substance of these charges was, Mr Hasting's receiving illegal presents—making unjust war upon the native princes, and oppressing their defenceless subjects. The first charge related to the Rohilla war, on which subject the governor obtained a decision by a majority of the commons, that there were *not* grounds of impeachment. A more important charge was soon afterwards produced, relating to the expulsion of a native potentate, Cheyt Sing, from the Zemindary of Benares, and Mr Hasting's severe and unjust conduct in that province. By the supreme council of India it had been solemnly decreed, that the native prince Cheyt Sing and his heirs for ever, should enjoy the Zemindary of Benares on condition of giving only the usual payment of revenue hitherto paid to the late vizier. For refusing to pay beyond this sum, the native prince was expelled from his territory, and his people were put to the sword. The friends of Mr Hastings saw with dismay, that the minister himself could not but side with his accusers. Mr Pitt acknowledged, that, admitting the right of the governor to have taxed the Zemindar, his conduct had been unnecessarily severe. On this charge the commons decided, that there were grounds of impeachment. But beyond this decision nothing of importance towards the trial was accomplished in the present session, which was closed by prorogation on the 11th of June.

The new taxes were few and light, being only extended to fill up the deficiencies of the sinking fund. It was during this year, that the hand of a wretched and obscure lunatic, Margaret Nicholson, had nearly deprived the sovereign of life. On the 2d of August, as the king was alighting from his carriage at St James's, a woman, who pretended to deliver a paper, struck at his majesty with a knife, but happily without effect, as the instrument was blunt and slender. She was immediately arrested, and examined by the physicians in presence of the privy council, who, on full proof of her insanity, committed her to Bethlem Hospital. The addresses of the people, on this occasion, evinced the strength and sensibility of their loyalty.

In the session which commenced with the year 1787, the attention of parliament was early directed to a treaty of commerce with France, which his majesty had concluded, and of which he ordered a copy to be submitted to parliament. The terms and principles of this treaty seem to have been treated by opposition with undeserved severity. In comparing the pecuniary advantages which would accrue to each of the two countries, it appeared, by Mr Pitt's statement, that although the revenue of France would be benefited to the amount of L. 100,000 a year, the annual gain of our revenue would be a million. A market was opened for our hardware, cutlery, cabinet, turnery, cotton, woollen, hosiery, and porcelain manufacture, on paying an easy duty of 10 or 12 per cent. *ad valorem.* On our part, we agreed to lower the duties on wines, brandies, and olive oil. A plan for consolidating the duties of custom was brought forward by the minister on the 26th of February. By this plan, he proposed to abolish all the duties as they had existed hitherto, in a complex and confused shape, and to substitute in their stead a single duty on each article. The excise also, though not so intricate as the customs, needed reform and regulation; and the duties on single articles, such as candles, spirits, &c. were to be brought into one point of view, and rendered so simple in the collection, that there could be no danger of mistaking them, or of being obliged to trust implicitly to the collecting officers. Another financial regulation was adopted, though with less unanimity. In collecting the duty on post horses, it was notorious, that the revenue had been largely defrauded every year, by the collusion between collectors and innkeepers. To supersede those frauds, the minister proposed to divide the country into districts for collecting the tax, and to farm it. Mr Windham, with great force, represented the practice of farming as a novelty of dangerous precedent in our constitution, a practice peculiar to despotic constitutions, and which, in the present instance, would leave one of the highest powers of the executive government to men, who, if the subject were aggrieved, would be absolutely beyond the reach or controul of parliament, till their farming lease had expired. The numbers of the opposition rose considerably in the votes on this question.

The English dissenters, a body of no insignificant weight in the public scale from their numbers and respectability, had been the warmest supporters of Mr Pitt in the last elections, and looked with sanguine zeal to the support of the minister in their pretensions to farther toleration, which they now expected from the growing liberality of peaceable times. In the present session, Mr Beaufoy made a motion for repealing the corporation and test acts, and was seconded by Mr Fox with his accustomed energy. It was not without surprise, that the dissenters beheld, in the person of that minister, for the sake of whose elevation they had decried and resisted Mr Fox, a severe opponent to their claims. Mr Beaufoy's motion was rejected by a large majority.

The subject of Mr Hasting's impeachment had been resumed early in the session, and had occupied a large proportion of it. On the 7th of February, Mr Sheridan opened the third charge against the late governor, respecting his cruelty to the Princesses of Oude, the wife, the mother, and the family of Sujah Dowlah, our own ally in India, whose treasures were their only treasons; but who were turned out of their palace by Hastings, (who had been constituted their guardian,) to the rigour of the merciless seasons, and to the yet more merciless soldiery. These, and other charges, having been successfully voted as grounds of impeachment by a majority in the commons, the minister himself being unable to resist the conviction of the most important charges, it was voted, (May 10.) that Mr Hastings should be impeached; and Mr Burke accordingly did impeach him, at the bar of the House of Lords, of high crimes and misdemeanors.

The session was closed by a speech from the throne, on the 30th of May, in which his majesty, after expressing his satisfaction at the prosperous situation of the empire, and the general tranquillity of Europe, lamented the dissensions which unhappily prevailed among the states of the United Provinces.

Civil war in Holland;

Since the conclusion of the war with England, Holland had been torn by internal dissensions. Involved, as she had been, in a quarrel with the Emperor of Germany, from whose vengeance and rapacity she was with difficulty saved by the interference of France, the faction of the Louvestein and of the Prince of Orange came, in 1786, to actual civil war; and the states of Holland took the violent resolution of suspending the stadtholder from his office of captain-general of the provinces. The new monarch of Prussia, Frederick William, whose sister was the Princess of Orange, feeling for his relatives, and anxious to make a display of his power, interfered, through his ambassador, with the states general. They, more temperate in their views than the states of Holland, were unfortunately too feeble to overawe the latter, and were unable to settle the dispute by the mediation of Prussia and Britain, although they wished to do so. The states of Holland, on the contrary, were in the interest of France, and solicited the court of Versailles to interpose their mediation. The French ambassador answered tardily, that his most Christian majesty would assist the Dutch, in case they were attacked by any foreign power. As soon as this declaration was known, it animated the court of London to act with greater spirit and decision in support of the stadtholder, and the most vigorous naval preparations were made to second the King of Prussia, in case France should oppose him by land. This promise was made by France in September; but, in the mean time, an accidental circumstance having drawn the King of Prussia to change his remonstrances into actual hostilities against the opponents of the stadtholder, decided the fate of Holland for the present, and afforded France an opportunity of evading her promise, since the insurgents were actually quelled before France could have interfered. The Princess of Orange, a bold and high spirited woman, had taken the resolution of going to the Hague and addressing the people, trusting to her own popularity and eloquence. She was, however, insulted by the populace, and for some time kept a prisoner in their hands. This insult roused Frederick William, who, at the head of 20.000 men, entered Holland. The Dutch patriots fled every where before him. The cities most distinguished for democratical zeal surrendered almost as soon as summoned. On the 10th of October, Amsterdam opened its gates to the victor. Such was the event of Prussia's interference. In the mean time, the dignity of Mr Pitt's language, and the suddenness of his preparations, conspired, with the deranged state of the French finances, to intimidate that power from interfering farther, although very serious preparations by sea and land had followed her declaration of intending to succour the Dutch. In answer to the memorial of the Duke of Dorset, our ambassador at Paris, it was declared, that his most Christian majesty never had meant to interfere by force in the affairs of Holland, and that he agreed with pleasure to the proposal of his Britannic majesty for mutually disarming.

Which is quelled by the interference of the king of Prussia.

Motion for abolishing the slave trade. 1788.

The present period of peace seemed to favour the growth of moral, as well as of physical prosperity in the country, and the session of 1788 was memorable for the first discussion that took place in parliament on the subject of abolishing the inhuman African slave trade. By the unfortunate indisposition of Mr Wilberforce, the day appointed for that gentleman's motion for abolishing the traffic was passed, without his being able to fulfil his intention; but, at the suggestion of Sir William Dolben, some regulations for restraining the cruelties practised aboard the slave-ships were enacted, which were confirmed and extended during the subsequent year.*

Indian affairs.

Perpetual disputes having arisen, as had been foreseen and foretold between the two Indian boards of direction and controul, the minister thought proper to introduce his famous declaratory act, by which various new and important powers were conferred on the board of controul, under pretence of explaining the former. After this new act, not a doubt could remain, that the crown and the commissioners were invested even with superior powers of patronage over Indian affairs, to those which Mr Fox wished to have given to parliament in the bill which he proposed. The only difference was, that Mr Pitt had obtained for the crown an influence, which his opponent sought to gain to the representatives of the people, by a fair, single, and decisive measure.

Anniversary of the revolution celebrated.

On the 4th of November, the nation joined, without distinction of parties, in celebrating the centenary anniversary of the glorious revolution in 1688; but their attention was almost immediately called to a more melancholy object of public feeling. The king's health, which had for some time been declining, was affected with fever and delirium. This occasioned a suspension of the royal functions, for which the constitution, in all its fulness, had provided no express remedy. The analogy of the common law seemed indeed to point out the Prince of Wales as the natural successor to the throne during its temporary vacancy; and as the party now in opposition were avowedly the friends of his Royal Highness, a change, in every department of office, was likely to be the result of his majesty's continuing under the present affliction. Parliament met in November, but adjourned till December. On the 4th of that month, the important question of a regency began to be discussed. Mr Fox decidedly insisted on the right of the Prince of Wales to assume the vacant functions of royalty whenever parliament should pronounce it necessary that a regent should be appointed. Mr Pitt, with no less decision, pronounced the doctrine of the prince's right to the regency treason against the constitution, and contended, that the prince had no more a right to be elected than any other individual. It was retorted, with great severity by the opposition, that this was really to make the crown elective. If a stranger, said Mr Fox, were to ask, is your throne hereditary or elective? he must now answer, I cannot tell, I must ask the king's physicians,—if his majesty is well, it is hereditary; if he is unwell, it is elective. The revolution, it was contended by ministers, had conferred the crown by the election of a new prince; but it was answered, that the revolution was not a precedent for the regular progress of government, any more than the sick man's physic was proper during health. Nothing in the present circumstances made it necessary to break the hereditary line of succession. The case, though new, did not sanction a revolutionary reversion to the people, as the primary fountain of power. It was a case to be judged of by analogy—the sovereign was dead for the present in point of political capacity; and the hereditary nature of the government suggested no other successor than the lawful heir. The doctrine of Mr Pitt, however, prevailed in a parliament, whose zeal for the revolutionary doctrine of electing a regent, so much at variance with their principles on the public election of representatives, may be suspected of having been influenced by the hopes (that were never abandoned,) of his majesty's recovery. The question of the prince's right to the regency being decided, Mr Pitt, before he laid the full plan of the regency before the House of Commons, acknowledged the propriety of the Prince of Wales being elected to that office by parliament, and submitted to his royal highness the terms on which it was proposed that he should hold the regency. The answer of the Prince was temperate, but decided. He lamented, for the sake of the public, that those powers with which it was proposed to invest him, were such as degraded and divided the executive power; yet, that a conviction of the evils that must result to the nation from his refusal, would induce him to undertake the painful trust.

Indisposition of the king.

The question of a regency discussed.

On the 16th of January, 1789, the whole plan of the regency was submitted to parliament. The prince was to exercise the regency during his majesty's illness, without being admitted to any share in the care of the royal person, or interference with the king's household and private affairs; he was to grant no pension nor reversion, and no office but what the law absolutely required for any other terms than during the king's pleasure, nor any peerage except on the royal issue. The persons attendant on his majesty, and the officers of his household in general, were to be under the exclusive controul of the queen. The disposal of one fourth of the civil list was thus put in the hands of her majesty, and indirectly retained for the strength of a party whom she was known to favour. During these events, his majesty continued chiefly under the care of Dr Willis, who, of all his physicians, had been the most sanguine in his opinion of his recovery; hitherto these hopes had been indefinite as to time. During the month of February they became more and more decisive.

Amidst circumstances so important to the general interests of the empire, the Irish parliament asserting their legislative independency, and voted an address to the Prince of Wales, beseeching him to assume the functions of royalty. The lord lieutenant having refused to transmit their address, the Irish peers and commons voted an unqualified censure on his conduct, and sent commissioners to London to wait on his royal highness; but this measure, and all others connected with the plan of regency, was rendered unnecessary by the recovery of his majesty, which was announced to parliament by the chancellor on the 10th of March. Innumerable congratulations reached the throne, from the peers and commons down to the humblest corporations; a solemn thanksgiving was celebrated through the kingdom; and in London his Majesty made a public procession to St Paul's, attended by both houses of parliament.

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* When witnesses were examined at the bar of the House of Commons, on the subject of this horrible traffic, it appeared in evidence, that 5 feet 6 inches in length, and 16 inches in breadth, was the average space allotted to each slave. The lower deck of the vessel was entirely covered with bodies. The space between the floor of that deck and the roof above, in height about 5 feet 8 inches, was divided by a platform, also covered with human bodies. The slaves were chained, two and two, by their hands and feet, and by means of ring-bolts fastened to the deck. In that sultry climate, their allowance was a pint of water each *per day*, and they were usually fed twice a day with yams and horse-beans. After meals, they were compelled, by the whip, to jump in their irons; this was called *dancing*. They had not, as was emphatically stated, when stowed together, as much room, either in length or breadth, as a man has in his coffin.

The business of parliament now returned to its usual channel. A supply of £218,000 was voted for fortifying our West India possessions. Mr Fox, persevering in his efforts to obtain the repeal of the shop tax, was at last successful; and the prohibition of the poor pedlars was also abolished. The trial of Mr Hastings proceeded, but with no circumstance of memorable importance.

War had for some time raged on the eastern frontiers of Europe, between the powers of Russia and Austria leagued against the Turks. In this contest, the northern powers of the Continent found themselves at last involved, either as principals or arbiters. While Denmark allied itself to Russia, Gustavus of Sweden, allured by a subsidy from the Porte, and impelled by his ambition and hatred of Russia, had declared against the latter power, and sought, when it was too late, to conciliate the Danes. In September 1788, the Prince of Denmark invaded Sweden on the side of Norway, and advanced to Gottenburgh with trifling opposition. The governor of the place, and the inhabitants, terrified at the prospect of a siege, had determined to capitulate; but Gustavus riding thither with the speed of a courier, reached the place in time to save the capitulation, to displace the governor, and to animate the inhabitants with nobler sentiments. Gustavus assembled the townsmen; he reminded them of the ancient glory of the Swedish arms, and made them promise rather to be buried under the ruins than surrender. But from this dreadful trial of their fidelity, the inhabitants were saved by the timely interposition of England, Prussia, and Holland. Mr Elliot the British minister at Copenhagen, and Baron Borsche the Prussian envoy, threatened an immediate attack by sea and land on Denmark, if hostilities should proceed. An armistice was fixed, which ended in a treaty of neutrality, ratified in the course of 1789.

The party spirit of the nation had, for some years, assumed a milder aspect; and the questions which had been agitated between ministers and their opponents, though they furnished matter of zealous discussion, had neither involved universal enthusiasm, nor degenerated into personal rancour. But the progress of the French revolution began at this period to be viewed by the British nation with an eagerness, that seemed to reawaken, upon the subject of foreign civil wars, all the collision of opinions which had engendered our own. The event was foreign, but the application of its principles came home to ourselves. By the genuine Tories of England, the French revolution, even as early as the period of storming the Bastile, was regarded as a horrible event, which would annihilate France as a power in Europe, and consign to similar anarchy and ruin every nation whom the contagion of her politics should affect. "France," said Mr Burke, when he commented on this event in parliament, "France is, in a political light, to be considered as expunged from the system of Europe. Were we absolute conquerors, and France to lie prostrate at our feet, we should blush to impose upon Frenchmen terms so destructive to all their consequence as a nation, as the durance they had imposed upon themselves." He was indignant that any Englishmen should approve of the French revolution, and astonished that they should compare it with our own. Ours was a revolution not made but prevented; theirs was a tempest of anarchy and bloodshed; the principles of the two events were as different as good and evil. Such were the sentiments delivered by Mr Burke, in a debate which took place on the 9th of February 1790, upon a subject which would seem to have no direct connection with the French revolution: (on a question of the army estimates.) But the minds of men were full of this subject, and disposed to give vent to their opinions wherever publicity could be obtained.

Speech of Mr Fox.

Mr Fox vindicated the principles of the great event, as entirely those which had produced our own revolution; he hailed the emancipation of so many millions of men from tyranny, as a glorious era. France, it was owned, required a new constitution, and from whom had she to expect it? From a king at the head of his courtiers? From Broglio, at the head of the army? From the dungeons of the Bastile? or, from that spirit in the people which had laid the Bastile in ashes? At this period, Mr Burke, Mr Windham, and some others, who had formerly sided with the opposition, now ceased to act with them; but the opinions which Mr Fox had expressed, were supported both in and out of parliament by the generality of those who had maintained the doctrines of Whiggism. Of these arguments and speculations respecting the French revolution, so recent in the public memory, it is needless to give any account. As the tragedy of French affairs grew deeper, much of the sanguine hope of the triumph of liberty was diminished. But in justice to those who predicted that final triumph, let it be remembered, that as we recovered our rights after a Cromwell and two succeeding tyrants, so may France *yet* recover her's after Bonaparte and his successor. The followers of Mr Burke's speculation have certainly less reason to expect their prediction to be fulfilled, that France is to be expunged from the system of Europe.

Affair at Nootka Sound between the British and Spaniards.

On the 5th of May, a message from his Majesty announced the serious intelligence of the prospect of a rupture with Spain. In 1788, a settlement had been made by some of our countrymen at Nootka Sound, on the western coast of America, about the 50th degree of latitude. The ground had been purchased from the natives; it had never been visited by Spaniards. In the month of May 1789, two Spanish ships of war arrived in the Sound, and mutual civilities passed between the Spanish and British officers; but, after a few days, the Iphigenia was seized by the Spanish commander's orders; the officers and men were sent on board the Spanish vessel, put in irons, and conveyed to a Spanish port. Another British vessel was afterwards captured, the crews imprisoned, and the cargoes sold without formal condemnation. Taking possession of the settlement of Nootka Sound, the Spanish commander declared, in the name of his Catholic Majesty, that all the lands between Cape Horn and the 60th degree of latitude, belonged to Spain. When this affair was submitted to parliament, addresses were presented to his Majesty, and a vote of credit of one million passed without opposition. The British government now exhibited at once the firmness of its character in negotiation, and the vastness of its resources in immediate armaments.

By the family convention still subsisting between the houses of Bourbon, France was bound to cooperate with our antagonist; and the national assembly, though intent on other matters, voted an aid of 14 ships of the line. But the court of Madrid plainly saw the reluctance of the French nation to enter into a war with England, and yielded to our demands, which were immediate restitution and indemnification. On the 2d of October, a convention was signed at the Escurial, by which every point in dispute was settled. The settlement at Nootka Sound was restored, the free navigation and right of fishery in the southern pacific ocean were confirmed to Britain, and a free trade on the American coast to the north of the Spanish settlements, unaccompanied, however, by any formal renunciation of sovereignty on the part of Spain. On the other hand, neither of the two powers were to form a settlement nearer to Cape Horn than the most southerly of the Spanish settlements.

Convention between Spain and Britain, signed Oct. 2.

Proceedings in parliament.

A new parliament met on the 25th of November. The first object of the minister was to provide for the expense of the armament against Spain, amounting to L.4,000,000: he proposed to obtain a part of this sum by taking half a million from the unclaimed dividends in the bank of England. But this measure, which would have been a direct violation of the right of a chartered body, was ably and successfully opposed. The term *unclaimed* dividends, in reality meant, *unreceived* dividends; for when the creditors names were afterwards published, numbers of claimants came forward, who had been ignorant of what the bank owed them.

Controversy respecting the French revolution.

The violence of political controversy on the subject of the French revolation had been kept alive by the mighty events still passing in France, and still more by the publications which issued from the presses of both countries. Among the works in our own language, which excited the strongest, though most opposite, sentiments of enthusiasm, were Burke's Reflections on the Declaration of the Rights of Man by the French National Assembly; and the answer to that work by Thomas Paine. In this literary controversy, the most romantic and chivalrous principles of loyalty, and a style of eloquence dazzling, and often electrifying, were opposed to the surly republicanism and blunt declamation of the American school.

1791.

Soon after the winter recess, a bill passed for the relief of the English Catholics from the legal penalties still in existence; a humane measure, but unnecessarily confined to such Catholics as should protest against the political authority of the pope. Mr Wilberforce's motion for the abolition of the slave trade, to the disgrace of the legislature, experienced a rejection.

Some salutary reformations in the practical laws of the country, engaged the attention of parliament. A bill, originating with the minority, was passed for securing the freedom of elections; and another for prohibiting the attorney general in the right of the crown, or any individual in his own right from disturbing a possessor in his franchise.

The most important transaction in the internal regulation of the empire regarded Canada. By a bill which Mr Pitt introduced, the constitution of that country was changed from the arbitrary form which it had received from France; the habeas corpus act was introduced; councils nominated by the sovereign, and houses of assembly chosen by the people, were established in the two governments of Upper and Lower Canada. The British parliament reserving a right of imposing only such taxes as were necessary for the regulation of trade and commerce, left the raising of *other* taxes, and the disposal of *all* taxes, to the respective principal legislatures.

War continued to rage on the eastern frontiers of Europe, between the Turkish, Austrian, and Russian arms. By the peace of Reichenbach, which was mediated (in August 1790) by the courts of London and Berlin, Austria had withdrawn from hostility against the Porte; and, elated by their success, the mediating courts now demanded of Russia to abandon her successful career against the Turks. The Empress Catharine haughtily replied, that she would make peace or war with whom she pleased, without the intervention of any foreign power. Not choosing, however, to provoke too far those self-created arbiters, she secretly intimated her willingness to conclude a peace with Turkey, on condition of retaining the country eastward of the Neister, a desert tract of territory, valuable only for containing the fortress of Oczacow. This offer being peremptorily refused, the empress broke off the conference, and determined to prosecute the war. On the 28th of March, Mr Pitt delivered a message from his majesty to the House of Commons, importing, that the endeavours which he had used with his allies, not having proved successful, his majesty thought it necessary, in order to add weight to his representations, to augment his naval force. In the debate which ensued upon this message, Mr Pitt enlarged on the necessity of attending to the balance of Europe, and on the influence of the Turkish empire in the general scale. Mr Fox, and the whole party of opposition, strenuously contended against the projected war. We had no quarrel, Mr Fox observed, with the Empress of Russia; we had no alliance with Turkey. It was the absurd pride of interference, that prompted us to hazard a war, which could only second the ambitious policy of Prussia, and never could promote our own interests, or those of Europe at large. The Czarina had offered to cede all her conquests, but a barren desert, containing one valuable fortress, Oczakow; and could it be seriously said, that the balance of Europe depended on Oczakow being possessed by the Russians or the Turks. The policy of a war with Russia on such grounds was so difficult to be perceived or defended, that though the minister still retained the majority of votes, they fell far below his accustomed numbers. Encouraged by the voice of public opinion, both within and without parliament, Mr Grey proposed a vote of censure on ministers, for their precipitate conduct respecting Russia; and the motion was negatived by only 80 votes. The minister was thus compelled to give way to popular opinion: he receded from his armed mediation, after a fleet had been equipped—advising and leaving Turkey to conclude a peace with the empress on the terms which she had proposed.

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To divert the attention of the nation from the severe invectives on the failure and folly of this armed interference, Mr Pitt, at the next opening of parliament, (January 1792,) exhibited the most flattering and prosperous display of the national finances. The amount of the revenue exceeded that of last year by L. 300,000, and the whole surplus of the income over the expenditure was L. 900,000, leaving room to propose the repeal of some of the more burthensome taxes, and apply L. 400,000 to the reduction of the national debt. Our exports had risen to L. 20,120,000; and our internal trade had increased in at least an equal proportion.

bill ting wer ies.

The same session was memorable for the success of a bill originating with Mr Fox, for giving juries a power of judging of the intention, as well as fact, in deciding upon libels. The bill had been introduced, and passed the commons the preceding year, but was rejected by the lords. In the same house, it still encountered severe opposition; the law lords, Thurlow, Kenyon, and Bathurst, pronouncing it a fundamental subversion of English jurisprudence. Lord Camden and the Marquis of Lansdowne, with greater strength and liberality, contended, that the principle of the bill had been inherent in our laws and practice. Judge Jeffreys himself, in all his devotion to an arbitrary court, had been of this opinion. To whom, said Lord Camden, should the judging of libels be confided, or, to speak more properly, who were to guard the liberty of the press—the judges, or the people of England:—the juries were the people of England. In the fierce animosity of political opinions which had recently arisen, the one party made too forcible an use of the increasing horrors of the French revolution, to discountenance all reform in our constitution; while there was evidently, on the other, a spirit of lawless disaffection, cherished by a class of the British public, who were infected by the republicanism of France. Professing to raise a barrier at once against the licentiousness, and a popular bulwark in favour of reform, a society, called the Friends of the People, was formed. In such a mixed society, it may be difficult to pronounce upon the general wish; but of the leaders of this society, many were unexceptionable, and some were distinguished political characters. One of them, Mr Grey, gave notice of his intentions, to move, as formerly, for an inquiry into the state of the representation: his views were vehemently opposed by the minister, as well as by a majority of the people. Reform, in every shape, was now deprecated by that party as the pretext of revolutionists, and the certain precursor of the subversion of the constitution. In a royal proclamation against seditious writings and principles, which soon after appeared, the magistrates were exhorted to vigilance, and the people to obedience; and loyal addresses of answer to the proclamation, by both houses of parliament, were transmitted from every part of the kingdom. Amidst this fear of the infection of French principles and cruelty, the horrors and disgraces of the slave trade were not suffered to be erased from our own name as a nation. The motion, renewed by Mr Wilberforce, for abolishing that iniquitous traffic, was rejected in the Lords, even though softened down by the amendment of Mr Dundas for a gradual abolition.

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Affairs in India.

Before we take a view of those affairs, in Europe, which eventually dispelled all the pleasing hopes of peace and prosperity, so lately held out in the language of the throne, it is necessary, among the events of the present year, to notice the affairs of India. Tippoo Saib had concluded a peace with the East India company, in 1784; but, within a few years, a dispute with the Rajah of Travancore, respecting two forts which the Dutch had sold to that potentate, but over which Tippoo claimed a feudal sovereignty, involved the company, as allies of the Rajah, once more in hostilities with Tippoo. The war, which was renewed in 1790, was this year terminated with signal success. In February, Lord Cornwallis had invested Seringapatam, the capital of the Sultan's dominions, and the prince's affairs seemed so desperate, that he consented to peace, on terms dictated by the conqueror. These were, that he should cede one half of his dominions to the British and their allies; pay about L. 4,000,000 sterling, to indemnify their expences in the war; release all prisoners, and deliver his two sons as hostages for the performance of the treaty.

Coalition of Austria and Prussia against France.

Before the news of these distant triumphs reached us, the affairs of Europe were become dark and portentous. On the 20th of April, war was declared by the French National Assembly, against the king of Hungary, the title of Emperor being yet vacant by the death of Leopold II. In July, the combined armies of Austria and Prussia entered France, under the command of the Duke of Brunswick, preceded by that dreadful manifesto, in which they threatened to punish the French nation as rebels, and give up Paris to military execution, unless the king and royal family were set at liberty. For two months, the advance of the Duke of Brunswick, though conducted under many unprosperous omens, was unchecked: but, on the 20th of September, Dumourier repulsed him on the heights of Walmy, and his army, thinned by disease and famine, began their retreat. Before the close of the year, not only had the French dominions been evacuated; but the whole of the Austrian Netherlands, Luxembourg and Liege excepted, were overrun by the republican invaders.

Obnoxious decrees of the French.

In the mean time, the Parisians, alike ferocious in their fears and in their triumphs, had signalized the 10th of August and the 1st day of September, by massacres, at which the heart freezes in the recital, on pretence of the danger which was threatened by the approaching invaders. In November, the convention, intoxicated by the repulse of the hostile armies, passed their famous decree for fraternizing with all nations in pursuit of liberty—for annexing the Duchy of Savoy to the republic, and for opening the navigation of the Scheldt. The event of the 10th of August, by which royalty in France was abolished, was deemed sufficient grounds by the British court for recalling our ambassador. The French ambassador, though no longer acknowledged, remained in England. The fraternizing decree of the convention, and the decree respecting the Scheldt, occasioned an offer of our assistance to be made to the States General; an embargo to be laid on all vessels freighted with corn to France, and preparations for war by land and sea.

The substance of his majesty's speech when parliament next assembled, December 13th, was to declare the necessity of putting the nation in a posture of defence against internal disaffection, and external hostility. The usurping government of France, it was declared, had shewn their contempt of the rights of neutral nations by their obnoxious decrees; they had in particular invaded the rights of our allies, the Dutch, in their decree for opening the navigation of the Scheldt.

War seemed now inevitable, yet France still held out the appearance of wishing for conciliation. M. Chauvelin waving the ceremony of his being recognized at our court, informed Lord Grenville, in the name of the executive council of the French nation, that France would not attack Holland while she preserved her neutrality; and that the fraternizing decree had no reference to England.

With regard to the opening of the Scheldt, Chauvelin argued, that his country having rescued Belgium from the yoke of Austria, was bound to restore to the Belgians all their rights, of which they had been deprived. The navigation of the Scheldt was certainly one of these. How could the right respecting the Scheldt be excepted? particularly when it was of importance only to those who were deprived of it. The English government, after some discussion with Chauvelin, notified, that their conditions of peace were, that France should renounce her views of aggression, relinquish her conquests, and confine herself to her own territory. France had already conquered the Netherlands, yet it seems to have been expected, that she should quietly give them up.

Execution of Louis XVI.

The fate of the unfortunate Louis XVI. which had been for some time anticipated, occasioned the immediate dismissal of the French resident from London. It contributed, with the other horrible transactions of France, to rouse sensations of pity and indignation, which violently disposed the people of England for war.

France declares war against Britain. 1793.

Since the opening of the session in December 1792, the question of peace or war had been the subject of successive debates. On the 12th of February, a message from his majesty announced, that France had declared war against Great Britain and the Dutch. Mr Pitt read this declaration of war, and endeavoured to justify the British government from its individual charges.—" The king of England was accused of having favoured the coalition. Mr Pitt solemnly denied the charge. His majesty had recalled his ambassador from Paris after the 10th of August; but it was," said the minister, " because the government of France was from that day a government of usurpation. Chauvelin's letters of credence had been refused; but not until the French had offered repeated offences. We were taxed with framing the alien bill; it was a measure of self-defence against foreign incendiaries. The French accused us of prohibiting corn, arms, and ammunition, from being exported to France; that too was a measure of self-defence against the designs of France, avowedly shewn in her treatment of Holland. We had prohibited the influx of assignats; in so doing we had only shielded ourselves against a gigantic system of swindling. Lastly, we were accused of having prepared an armament to disturb the French operations in Belgium. True," said the minister, " we armed in our own defence when France shewed contempt of our allies; but we sought *not* to disturb their operations in Belgium, we meant to protect Holland."—He concluded by moving for an address to support his majesty in the war.

Speech of Mr Pitt.

Mr Fox opposed the address, because it pledged the house to an indefinite sanction of the past and future conduct of ministers. He proposed as an amendment to the address, that the house should promise to support the throne, in bringing France to such terms of pacification, as should be consistent with the honour of his majesty's crown, the interests of his people, and the security of our allies. The causes of war alleged by France, he did not pretend to justify indiscriminately. It had been customary with France, even under her ancient government, to crowd into a manifesto every complaint, solid or insignificant, which could be mentioned as grounds of hostility: but the dismission of Chauvelin, and our prohibiting the exportation of corn to France, (in violation of the treaty of 1786,) when a supply of grain was permitted to other countries, did not warrant us to say, that the war was pure aggression on the part of France. Mr Fox severely censured the conduct of ministers, in refusing to send an ambassador to France. Had our conduct been more candid and conciliating, the fate of Louis, as well as the war, might have been averted. But the minister negotiated unofficially. What benefit could arise from this strange distinction between official and unofficial negotiation, Mr Fox could not conceive; but had we negotiated, (he would ask,) with a real and conscientious wish for peace? No; we remonstrated against accessions of territory, and we complained of the violated rights of our ally, but we proposed nothing that we could rationally expect to be conceded as a satisfaction. We pointed out nothing that could remove the alarm. We told them to abandon their conquests—to withdraw their troops from the Netherlands. While they were at war with the emperor, such a proposal was not an offer of peace. It was an insult, and a pretext for quarrel. The invasion of our ally, by the opening of the navigation of the Scheldt, was set forth as the grounds of war; but was this exclusive navigation really an object worthy of a war? Did the state's general think it such? had they asked for our assistance? had they determined to assert their right to the Scheldt by force of arms? No, they had not! How then could we take the lead, in asserting a claim in which we were not principals, and in which the principals did not call for our interposition. As to the satisfaction which we sought, viz. the restitution of Belgium, it was evidently and wholly impossible to be admitted. We made a pretence of the balance of Europe to justify going to war, but had we not seen France invaded, her frontier town taken, and her capital threatened, without speaking of the balance of Europe, or interfering to preserve it. Now, when France had repelled invasion, we discovered that Europe was in danger. This was the language of men devoted, not to the preservation of peace, but to the coalition against France.

In the mean time, the war was carried on, on the continent, by the allied powers formerly engaged, with various success. The French, under Dumourier, entered the Dutch territory on the 17th of February, and Breda, the fort of Klundert, and Gertruydenburgh, surrendered to their arms; but at the city of Williamstadt they first received a check. The English troops under the Duke of York having debarked in Holland, entered Williamstadt; and this circumstance, with other concurring events, turned the tide of fortune in favour of the allies. The successes of the Imperial commanders, Clairfait and Cobourg, were at first equally illustrious. The latter obliging Miranda to raise the siege of Maestricht, repassed the Maese, and defeated Dumourier, in two severe encounters at Neerwinde and at Fer de Louvain. The French now retreated from Belgium, pursued by the vengeance of the inhabitants. The defection of Dumourier left the French army in a state of imminent peril, from which the genius and courage of Dampierre, with difficulty, recovered it. But that enterprizing commander, advancing from his camp at Famars, attacked the allies at Quiverain, where he was defeated with the loss of 4000 men, and where he himself fell in the action. In this engagement, the English and Hanoverians turned the fortune of the day; the Coldstream guards were particularly distinguished, by charging the foremost lines of the French. By this success, the allies were enabled to besiege Valenciennes, which surrendered on the 25th of July. Mentz and Condé, about the same time, capitulated to the confederates. While so important a mass of the allied forces kept together, nothing could withstand their efforts; but unhappily they divided, entertaining different views of aggrandizement. The British, under the Duke of York, forming a distinct army with the Dutch and Hessians, opened the trenches before Dunkirk on the 24th of August. The works were carried on, though with trivial effect, till the 6th of September, when the covering army, commanded by the Hanoverian Field Marshal Freytag, was unexpectedly attacked and defeated by the French General Houchard; a successful sortie was at the same time made by the garrison, and the besieging army was compelled to retreat with the loss of all its heavy artillery. On her own element, Britain began the war with success. Tobago was captured by a British squadron under Admiral La Forey. The settlements of Fort Jeremie, and Cape St Nichola Mole in St Domingo, also surrendered to our arms. The small islands of Miquelon and St Pierre became an easy prey to our arms; and, in the East Indies, we became masters of Pondicherry, Fort Mahie, and other settlements of the French on the Malabar and Coromandel coasts. A fallacious hope, for a short time, shone upon the affairs of the allies, that the internal distractions of the French would afford them effective partizans in restoring the monarchy. After the fall of the Girondine, (the less ferocious faction of the republicans,) and the ascendency of the terrorists, some of the proscribed deputies fled from Paris, and raised the standard of insurrection in the provinces. In the south, a most formidable fœderation against the Jacobins was framed by the three cities of Marseilles, Lyons, and Toulon. Lord Hood was at that time cruising in the Mediterranean, and with him the people of Toulon and the French Admiral Frugoff negociated to surrender the town and the shipping. His Lordship took possession of both in the name of Louis XVII. solemnly engaging to assist in restoring the constitution of 1789. The siege of this place was immediately commenced by a large army of the republicans, with all the advantages of having the adjacent country subjected, although not devoted, to their cause. General O'Hara, who had reinforced the garrison with troops from Gibraltar, was wounded and made prisoner in a sortie, the neighbouring forts were carried by the enemy, and the town was bombarded and found untenable. Thousands of the inhabitants who crowded to the shore, were taken on board the English ships; but many more thousands were necessarily abandoned to the cruel vengeance of their countrymen. Of 15 French ships of the line which had surrendered to Lord Hood, only three were brought off.

Proceedings of parliament.

The session of parliament of 1794 was opened on the 21st of January. As the avowed object of the war had been the deliverance of our allies, and security for ourselves, the ministry were called upon, by their opponents, to explain why they had suffered a period of time to pass over, when the arms of the allies were every where victorious, without endeavouring to profit by success, and to restore the blessings of peace. "The present war, (said his Grace the Duke of Grafton, in seconding a motion of the Marquis of Lansdown, for addressing his majesty to make a pacific attempt,) was undefined in its principle and object. It was a war of extermination, which, if continued upon the present principles, would convert France into a great military school; it would rouse her utmost enthusiasm, and ultimately shake the prosperity and safety of these kingdoms." To these almost prophetic predictions, and to other views and arguments, strongly urged during this session by Mr Fox and Mr Whitbread, the answer of ministers was in substance: That though security was the object of the war, they would not bind themselves to define the circumstances which might be allowed to constitute that security; that the war held out every probable hope of success; that France was on the eve of bankruptcy, and could not long resist the allied powers; and finally, that, with a seditious faction at home, and a foreign enemy, bent on subverting our monarchy, we could not expect refuge from danger, even in peace, nor were peace itself desirable and safe, could we treat with such men as the present governors of France. The public in general received implicitly those views of success in the war. They listened to the descriptions which ministers gave of the dangerous conspiracy hatched by the reforming societies. Parliament was induced to suspend the habeas corpus act; and twelve of the reforming leaders were arrested for high treason. Of these, John Horne Tooke was the only man of the smallest political distinction. Hardy, a shoemaker; Thelwall, an itinerant lecturer; Holcroft, a play-writer; and others of less note, were his associates. They were indicted at the Old Bailey. It was sought to be proved, that the associations in question had armed themselves against the government; but it was only proved, that a few of the individuals had procured some pikes to defend themselves against the mobs at places where they held their meeting. Hardy was first tried; and after a trial of nine days, acquitted. Never was a verdict considered as more important to public liberty; and the eloquence of Erskine never brought more reputation to himself, or on the legal profession, than on this occasion. The verdict in Hardy's case clearly predicted the acquittal of the other reformers.

Trials for sedition.

Partial changes in administration.

Some of the late members of opposition, who had left their party on the breaking out of the war, were this year admitted to a share in the administration. Earl Fitzwilliam was appointed President of the Council; Earl Spencer, Lord Privy Seal; the Duke of Portland, third Secretary of State; and Mr Windham, Secretary at War. By a subsequent change, Lord Spenser was appointed to the head of the admiralty, and Lord Fitzwilliam was made viceroy of Ireland.

The military and naval force voted for the service of the year, amounted to 250,000, including 35,000 foreigners. A great augmentation of the militia, and of the volunteer fencible corps, took place; and the doubtful expedient was resorted to, of soliciting voluntary subscriptions by a formal letter, written by the Secretary of State to the Lords Lieutenants of the counties. A treaty was concluded with the king of Sardinia, by which that monarch received a subsidy of £200,000 a year from this country; and it was agreed, that his Britannic majesty should not conclude a peace with France, without the restoration of the conquered territories of Sardinia being made a preliminary. By another treaty, his Prussian majesty was to maintain 62,000 men, on condition of receiving from Britain L. 150,000† a month, besides L. 400,000 when his army should be put in motion, and L. 100,000 on their return. But the direction and command of these costly auxiliaries was still to be vested in his Prussian majesty.

Proceedings of the hostile armies.

On the 9th of April, his majesty the emperor of Germany arrived at Brussels, to take the supreme command of the allied forces. On the 16th, he reviewed them on the heights above Cateau. The following day the allies proceeded to invest Landreci, which fell into the hands of Prince Cobourg after a siege of no long duration. But to balance the success, Pichegru drove the army of Clairfait from Moucron, and the republicans got possession of Menin and Courtray. In June, the French, under Jourdan, having passed the Sombre, and laid siege to Charleroi, the Prince of Cobourg risked a general attack.

Battle of Fleurus.

The scene of the important battle which ensued was at Fleurus, memorable for the total defeat of the allies. Charleroi and Brussels thus fell, without resistance, into the hands of the French. This was but the prelude to a succession of victories on the side of the enemy. Ypres, the key of West Flanders, yielded to Moreau. The Duke of York had fatally separated from the confederates, and stationed himself at Tournay, which he soon found untenable, and retreated in the direction of Antwerp.

Progress of the French arms.

When the fate of the Netherlands had been thus decided, a body of 10,000 men under Lord Moira, which landed at Ostend, with difficulty reached the British army; but the tide of the war was too strongly turned, to be affected by so small a reinforcement. Ostend, Ghent, Mons, Oudenarde, and Neuport, fell in rapid succession into the hands of the republicans, and the whole line of the allies, from Antwerp to Namur, became broken and defenceless. The Stadtholder in vain called on his states to support him by a general levy: disaffection or apathy every where prevailed. Sluys alone made a brave resistance. In the mean time, the strong towns in the French territory, which the allies still possessed, being now completely insulated, quickly reverted to their former possessors. The army of the Duke of York retreated in August to Breda, and quickly after to Bois le Duc. Pursued by Pichegru at the head of 80,000 men, they next retreated across the Maese, took a fresh position near Grave, and at the beginning of October encamped under the walls of Nimeguen. At the latter end of the month they crossed the Waal, leaving a corps to protect Nimeguen; but the town was evacuated on the 7th of November, with great loss and confusion. During these events, the arms of the republic were equally successful in all directions. Clairfait, after successive defeats, was obliged to cross the Rhine at Cologne, and the imperial troops were pursued to the river side by their conquerors. On the side of Spain and Italy, the French armies shared similar triumphs, and victory, to use the language of Barrere, was in a state of permanence.

Amidst these disasters by land, it was some consolation that our navy, supported and even exceeded its former glory. By this naval superiority, we were enabled to capture the islands of Martinique, St Lucia, and Guadaloupe, although the last of these conquests was soon after recovered by the French. In February, the island of Corsica, where a great proportion of the inhabitants, under their ancient chief Paoli, were in arms against the French convention, was visited by Lord Hood's squadron, and, in a short time, the whole island submitted to the English and their Corsican adherents. In June, the representatives of the whole nation assembled at Corsica; voted the union of the island with the British crown; and a constitutional act was framed, almost exactly similar to the French model of 1791. Sir Gilbert Elliot (since Lord Minto,) assumed the power and title of viceroy.

In the month of May, the French Brest fleet under admiral Villaret, anxious for the fate of a large convoy from America, ventured to put to sea; though it was known that Lord Howe, with an equal force, was cruizing off the harbour to intercept it. Early on the 28th of May, the grand fleets of the two nations came in view of each other, and on the first of June, after Lord Howe had, by a series of masterly manœuvres, gained the weather gage, they came to a close and desperate conflict. After suffering immense carnage, the French admiral crowded off, and was followed by all the ships in a condition to carry sail. Six remained in possession of the British; but the French consoled themselves with reflecting, that they had saved a convoy of 160 merchant men, valued at many millions.

The brilliant successes of France by land, had, by this time, rendered most of the neighbouring powers disposed to acknowledge her new government, and some of them even to court her alliance. The Grand Duke of Tuscany, at the beginning of 1795, deserted the coalition. Prussia having received our subsidy, which she applied to accomplish the infamous partition of Poland, soon followed the same conduct, concluded a treaty with the French, and mediated a peace between the republic and the Landgrave of Hesse Cassel. Yet amidst all these unpromising events, the speech from the throne, at the opening of the next session of parliament, exhorted a strenuous continuation of the war; and every motion advanced by the opposers of the war, was negatived by triumphant majorities. In these debates, however, several accustomed supporters of the minister, sided with the pacific party in the commons; and Mr Wilberforce, announcing a total change in his views of the necessity of the contest, took the lead in proposing a negotiation.

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† The states general of Holland were to pay £400,000 of this as their proportion.

A loan of L. 4,600,000 was guaranteed by parliament to the house of Austria. The force voted for the year amounted to 100,000 seamen, and 216,000 regular soldiers and militia, exclusive of fencibles and volunteers, and embodied French emigrants. The sums levied for the service of the year, and the payment of the national debt, rose to L. 40,000,000; nor was our expenditure in Ireland, and the East and West Indies, taken into this account.

The trial of Mr Hastings, so remarkable for its importance, for the talents of its conductors, and for the length of its duration, was, in the course of 1795, brought to a conclusion. He was acquitted of every branch of every charge, distinctly and severally.

In the month of April, were celebrated the nuptials of his Royal Highness the Prince of Wales with the Princess Caroline, daughter of the Duke of Brunswick. The annual revenue of the prince was, after some agitation, settled at L. 120,000, exclusive of the rents of the duchy of Cornwall, estimated at L. 13,000. Of this income, L. 73,000 were appropriated to the liquidation of his Royal Highness's debts, under the direction of commissioners appointed by parliament. For some time, the attention and fears of government had been roused by the importunate and impatient clamours of the Catholics of Ireland, at the restrictions which still continued to gall that numerous class of subjects. Baffled in their applications to the Irish parliament, the Catholics had met over the whole kingdom, and addressed the sovereign himself in a determined and energetic manner. Ministers, who were embarrassed between the force and justice of those claims, and their wishes to retain the attachment of the high church Protestants in Ireland, who opposed the Catholic emancipation, seem to have adopted a momentary resolution of complying with the demands of the former party. Earl Fitzwilliam was appointed to the government of Ireland. His inclination to healing measures, rendered his appointment universally acceptable to the Irish. The depressed influence of the Whig Protestants, the friends of emancipation, rose in the Irish parliament; and a bill for the relief of the Catholics, drawn up by the accustomed advocates of their rights, was introduced into the Irish commons with little opposition. But the joy and conciliation occasioned by this event, quickly vanished. Earl Fitzwilliam, as a necessary step to the measure of emancipation, had been obliged to dismiss some of the most zealous of the anticatholic friends of ministers in Ireland. Indignant at this change, Mr Beresford repaired to London, and held conferences with the British cabinet, which induced a total change of measures. The popular viceroy was recalled, and Lord Camden sent in his place. The Irish parliament, after having voted with enthusiasm an approbation of all the measures of the preceding deputy, now rejected the bill in favour of their Catholic countrymen, and contributed, perhaps, to foster the seeds of a rebellion, which afterwards deluged the country with blood.

The retreat of the allies through the Netherlands and Holland, had become unavoidable at the close of 1794. From the latter country, the stadtholder and his family made their escape in an open boat, and arrived in England. The whole country followed the example of the Dutch capital in submitting to the French. The departure of the Duke of York for England, had, in the mean time, appeared as a signal, that the British despaired of preserving Holland. The shattered remains of our army, during a dreadful winter, retreated through Holland towards Bremen, which they reached in the month of March, after experiencing incredible hardships, and after having traversed, or rather fought their way across the provinces of Utrecht, Guelderland, Overyssel, and Groningen. The campaign of 1795 was, however, much less disastrous to the allies in other parts of the continent, than that of the preceding year. By a severe defeat which the French sustained on the Rhine, they were driven to seek shelter under the walls of Manheim and were obliged to raise the siege of Mentz. Both Jourdan and Pichegru were driven back from the Rhine; the Imperialists recovered the Palatinate; Manheim was reconquered; and, at the end of the campaign, the Austrians had been so successful as to form the project of attacking Luxembourg.

War with Holland.

The declaration of the Dutch republic, in favour of France, was thought to justify Britain in making reprisals. In the course of the summer, their valuable settlement at the Cape of Good Hope, surrendered to Admiral Elphinstone.

Expedition to Quiberon Bay.

In the month of June, an unfortunate descent was made in the bay of Quiberon, by an army of some thousand emigrants, who were debarked from a British squadron under Sir J. Borlase Warren, and who, it was vainly hoped, would revive the spirit of royalty, so lately crushed in La Vendée. But their force was suddenly surprised by the republican forces of Hoche. Their leaders, among whom were the venerable bishop of Dol, and the gallant and young Count Sombreuil, were consigned to military execution; and about 60,000 stand of arms, intended for the expected associates in the cause of royalty, fell into the enemy's hands.

Naval affairs.

The naval events of the year were not important. In March, an indecisive engagement took place between our fleet in the Mediterranean, under Admiral Hotham, and the French, under Admiral Richery, in which the enemy lost two ships of the line. In the month of June, Admiral Cornwallis, with only five ships of the line, maintained a running fight, for a whole day, with 13 sail of the enemy's line, without suffering them to gain any advantage. The same ships of the enemy fell in with Lord Bridport's fleet, and were defeated off Port L'Orient, with the loss of three first rates. In the West Indies, the French recovered Fort Tiberon, in St Domingo, and the islands of St Eustatia, and St Lucia.

Parliament meets.

The war, although supported by a powerful party in the country, was, by this time, become extremely unpopular among the lower community. A scarcity, at the same time, prevailed throughout the kingdom; and such was the state of the poor, that some wretched individuals had died of hunger. In this state of discontent, the multitude, while they demanded the real blessings of peace, were also clamorous for the visionary blessings of annual parliaments, and universal suffrage; and the associations formed for the latter objects, had grown exceedingly bold and licentious.† Parliament met on the 29th

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† That which was held near Islington, at Copenhagen House, was computed to collect, at one time, 40,000 individuals; but the most of them were mere spectators.

Tumults in London.

of October 1795, a day remarkable for the disagreeable events attending it. His Majesty was beset by a furious multitude, in passing from St James's: a stone was thrown into the state coach, and the interposition of the horse guards was necessary to preserve his person from the insults of the mob. Ascribing this ebullition of popular fury to the inflammatory influence of the reforming associations, ministers introduced into parliament two bills, which struck at the meeting of the disaffected, and enlarged the treason law, and enacted severer punishments for sedition. The first of these bills, which passed the peers, at the instance of Lord Grenville, the pains of death were attached, not merely to the actual conspiracy against the king, but to the guilt of speaking or publishing what might tend to produce rebellion. By the other bill, which Mr Pitt carried through the Commons, a right was given to magistrates to disperse, at their pleasure, any meeting suspected of seditious objects. The term of three years was prescribed to the duration of these acts. The financial business of the session necessarily included the imposition of fresh taxes: the most important of these was one on legacies, and an addition of 10 per cent. to the already assessed taxes. One hundred and ten thousand seamen were voted for the year 1796, and two hundred and seven thousand men for the land service. A loan was negotiated for 18 millions, and afterwards for seven millions and a half.

Prospects of a peace. 1796.

The first declaration of a pacific disposition, was now made by the British ministry, in the fourth year since the commencement of the war. The destruction of the Jacobins, and the return of a comparatively mild and humane system in France, had, for some time, taken away the difficulty of having no government, with whom we could treat. On the 8th of December 1795, a message from his majesty announced to parliament his willingness to meet any negotiation on the part of the enemy; and Mr Pitt, in consequence, obtained a vote of the Commons, that Great Britain *might* now safely treat with France. It was objected, by his opponents, that this cold and general declaration was altogether inexpressive of a real determination, that ministers *would* open a treaty. The minister, however, could pledge himself to no specific promise on the subject. A commission was given to Mr Wickham, our agent at Basle, to sound Mr Bartholemi, respecting the willingness of the French government to come to terms; but the declaration, on the part of France, that she never would concede Belgium, put an immediate termination to the affair.

Mr Wilberforce's annual motion, for abolishing the slave trade, was lost for want of numbers to constitute a house. A humane attempt, by Lord Moira, to obtain a bill for the relief of insolvent debtors, met with no better success. The session was closed on the 19th of May, and, in a few days afterwards, parliament was dissolved.

Campaign in Italy.

On the continent, this year was signalized by the most awful and interesting fluctuation of fortunes, between the arms of France and our allies. On the side of Italy, it is true, there was no fluctuation of success. The career of the enemy was uniform. Sardinia, Parma, Modena, and Genoa—the Pope, and the king of Naples, were reduced to implore and purchase peace, by immense sacrifices, in consequence of the victories of the French, obtained by a commander, (Bonaparte) young, and hitherto unknown in the world; but who has since chained the history of the age to his biography.

In Germany, the campaign began successfully on the side of the French. Moreau and Jourdan, superseding Pichegru in command, penetrated to the very heart of the empire. Moreau, after successive victories, forced the Elector of Bavaria to sue for peace; while Jourdan, taking the route of Upper Suabia, had penetrated to Amberg, and even stretched his lines to the neighbourhood of Ratisbon. At this critical period, the fortunes of Austria were restored by the gallantry of the Archduke Charles, who attacked the van of Jourdan, and following up the success by repeated blows, pursued the invaders back to the Lower Rhine. Moreau was compelled to retire by the fall of the army on his left, and pursued for 300 miles, a most skilful and memorable retreat, in the face of a superior enemy. On the 2d of August, a most valuable and bloodless conquest was made of nine Dutch ships, which had been sent by that enemy to recover the Cape of Good Hope. Their commander, Admiral Lucas, terrified by a mutinous spirit among his crews, yielded the fleet (without firing a shot) to the summons of Admiral Elphinstone. The Dutch possessions in the East Indies, including their settlements in the island of Ceylon, fell about the same time an easy prey to our arms. St Lucia was recovered by General Abercromby, and a formidable insurrection of the negroes was quelled in Grenada and St Vincent's. Whilst the successes of Bonaparte in Italy, and his fame among his countrymen in Corsica, inspired the Gallic faction in that island, a body of French, under General Cazette, arrived to co-operate with the natives. They drove our troops from Bastia, and obliged the viceroy and the fleet to take a final leave of the island.

The series of warlike events in this year, was concluded by the most formidable effort that was ever made by France in the course of the century, to invade these dominions. On the 2d of December, fifteen thousand chosen troops, intended to act with the disaffected in Ireland, were embarked at Brest, accompanied by eighteen sail of the line, and a number of frigates. But of this armament, which was overtaken and dispersed by a storm soon after it had put to sea, only eight two deckers reached the coast of Ireland. They appeared off Bantry Bay, but were forced from that station by another tempest, narrowly escaping two squadrons of our navy. They returned to France with the loss of several ships of the line.

As the feeble and ineffectual attempt of Mr Wickham to open a treaty for peace, had not gained to ministers much credit for pacific intentions, a more direct negociation was opened some months after, and Lord Malmesbury was sent ambassador to France. His plan of pacification, however, made the cession of Belgium to the emperor an indispensible preliminary; and on declaring that he was empowered to treat on no other terms, his lordship was ordered by the Directory to depart within forty-eight hours. His stay in Paris did not exceed two months, during which time the Court of Madrid issued a proclamation of war against Britain.

The minority in the next session of parliament, made the severest animadversions on the conduct of Lord Malmesbury's negotiation. Mr Fox did not hesitate to accuse the minister of insincerity in the whole affair. We had proposed to France that she should cede the Netherlands, when we well knew that France would consent to no such proposal. "The war," he said, "was now evidently maintained for no other object than recovering Belgium." The pacific motions of the opposition were, as before, overturned by large majorities.

After the failure of the negotiation, the mutual language of the French and English governments breathed irreconcileable hatred. The French uttered, as usual, their unmeaning threats of invasion. The English ministers, anxious to unite the people, by fear, if not by love, favoured and propagated the rumour; but, from the universal panic, some consequences followed, which the government neither wished for, nor intended to produce.

On the prospect of invasion, the people had been exhorted, but in vain, not to be moved by a false alarm, or give a blow to public credit. The diminution of gold became greater and greater every day. The run upon the bank continued to increase until the 25th of February, a day that will long be memorable, as the last on which the Bank of England was compelled, at the will of the bearer, to pay its promissory notes in gold and silver. Till the evening of the 25th, the run continued; but, on the next day, though it was Sunday, an order was issued from the privy council, requiring the directors of the bank to forbear issuing any cash in payment, until the sense of parliament could be taken upon the subject. A great crowd of people, who had assembled on Monday morning, as soon as the doors opened, were presented with hand-bills, announcing the authority by which the stoppage had been sanctioned.

The resemblance of this stoppage to actual bankruptcy, occurred to many persons who were not versed in the modern science of distinctions. But the friends to ministers boldly denied what they were pleased to call the false notion, of the bank being unable to make their payments in gold. They said, that it was a great measure of state, produced by the caution of the minister, that too great a drain of gold should not be made. They accused the Jacobins of having caused a distrust of the bank, and of having formed a design to ruin the credit of the country, by persuading the people that gold was preferable to bank notes. It is with pain that we notice the well-intentioned mind of Wilberforce himself, led away by this senseless clamour. In the first debate upon the subject, he attributed much of the public calamity to the conduct of the opposition. In answer to this, Mr Fox said, that it reminded him of a scene in Ben Jonson, where it appears, that an impostor had played his tricks very successfully for a long time upon his dupes; and when he was detected, the dupes became very angry, not at the impostor, but those who had detected him. The consequences which have since resulted from the order to stop bank payments in cash, the depreciation and the deluge of paper currency were then predicted; but, being Jacobin predictions, it was resolved, that they should not be believed.* The fact, of the bank directors having sheltered their stoppage under an order of the privy council, however glaring, was most shamefully denied by the directors. Several days before the bank stopt its payments, the directors, observing with great uneasiness the large and constant decrease in their cash, held a particular consultation on the subject; and perceiving that their cash was reduced to a certain sum, they came to a resolution to go to Mr Pitt, and tell him how they were circumstanced. They did so; and Mr Pitt, seeing that the peal of alarm about invasion, which it had suited the views of ministers to ring, had produced more serious effects than he had foreseen, observed, that the alarm of invasion was now become much more general than he could see necessary. They then pressed Mr Pitt to make some declaration in parliament, which should ease *the public mind*. In the 24th of February, they had another interview with Mr Pitt. On a report by a committee of their whole court, it was declared that the cash was going; which gave such an alarm for the safety of the house, that no time was lost in sending a deputation to Mr Pitt, to ask him how far they might venture to go in paying cash, and "when he would think it necessary to interfere."

A committee appointed to inquire into the solvency of the Bank.

On the 27th of February, Mr Pitt gave notice of a motion to be made next day, for the appointment of a committee to inquire into the solvency of the Bank, and also to inquire and report as to the necessity of continuing to prohibit their money-payments. The opposition members strongly contended for an inquiry into the causes of the necessity of this measure. Here, they said, is an open acknowledgment, that the government has been obliged to interrupt the right of the subject, the right of the holders of notes, to demand payment in gold and silver, yet a remedy is attempted without examining the cause of this evil. Their motions for full inquiry shared the general fate of the proposals of the same party. A committee, chosen by the ministerial party, was appointed, for the object, as Mr Pitt said, of ascertaining that the affairs of the Bank were not in a dangerous state. They were not, he added, by any means called upon to push their inquiries into circumstances, the disclosure of which would be attended with temporary injury to the credit of the country, and with permanent embarrassment to the operations of the Bank. This secret and delicate committee seemed, indeed, to understand the lesson that was set to them; they made no inquiries about the quantity of gold and silver in the bank; they only compared the bank notes of their creditors with the money that was due to them by government. When the reports of this committee were brought up,† which Mr Pitt called highly consoling, the ministers assumed a high tone. Lord Hawkesbury spoke exultingly of paper. It is not only, said his lordship, a cleaner, neater, and more portable medium to represent property, but it is the essence of wealth itself. The flourishing state of our commerce, is the cause of this inability to produce specie to answer the demands upon the Bank of England. Mr Sheridan called upon gentlemen, if this was the case, to explain how it happened, that the public were of this opinion, and yet rejected it. The public like bank notes as well as guineas; and yet, while ministers asserted this, they passed a law to protect the Bank against the demands of that public. They passed a law to compel that public to take the paper, which it was pretended was as popular as gold.

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* Mr Sheridan said, that he was convinced, that if the bank was not able to resume its payments immediately, he foresaw it never would be able afterwards to defray its outstanding engagements in cash. The suspension of cash payments, he predicted, would produce the issue of a much greater quantity of paper.

† The first report of the committee, March 3d, 1797, was as follows: Your committee have examined the total amount of outstanding demands on the Bank of England, and likewise of the funds for discharging the same, and think it their duty,

State of the Bank on the 25th February 1797.

The statement of the Bank clearly ascertained their solvency in paper: but with regard to their power, or the prospect of power, of renewing their payments in money, it was far from satisfactory. According to the state of their finances, they stood thus on the 25th of February:

Amount of bank notes in circulation,	£8,640,250
Bills and notes discounted,—cash and bullion,—petty cash in the house,	4,181,400
Difference, ...	£4,458,850

In this statement, the comparative amount of the discounted bills, and of the coin and bullion, were not given. This was not satisfactory to the public; for the main point on which the public alarm had been grounded, was the inability of the Bank as to real, not nominal money.* A table was indeed drawn up by a Mr Allardyce, from which the coin and bullion of the Bank, at their stoppage, was said to be £1,272,000. This was said to be ascertained, from a statement of proportionate increase or diminution of the cash and bullion in the Bank for distinct periods in several years. But the direct sum of their cash and bullion was not given in by the bankers. Allowing, however, that this sum did exist in cash and bullion at the period of stoppage, it gave but a scanty prospect of their speedy resumption of solid payments.

Mr Pitt was charged with having drained the money from the Bank, and sent it abroad in subsidies. He replied, that the whole of the transactions of the Bank, or nearly so, were transactions in paper. This answer certainly repelled the direct censure, that he had drained the Bank of gold; but it still did not disprove, that the advances of the Bank to government, the consequences of an expensive war, had occasioned an issue of paper too much disproportioned to the solid money of the country; that the whole system of our finances was a paper system, and that it had been stretched to a dangerous length.

In estimating the finances of the year, Mr Pitt stated, that the loan which he should require would amount to eighteen millions, besides five millions and a half of exchequer bills, and thirteen millions and a half of navy bills, which he proposed to fund. Three millions were raised for the assistance of our allies. A levy of 15,000 seamen was ordered to be raised upon the different parishes; a supplementary militia, to the number of 60,000, and a force of 20,000 irregular volunteer cavalry, was expected to be raised by an act, which obliged the owners of pleasure horses to furnish a certain proportion of horsemen for the militia. The general fear had hardly been quieted upon the subject of public credit, when it was awakened by a still more alarming danger. This was a mutiny on board the channel fleet, which broke out in the month of April.

The fleet being entirely in possession of the seamen, delegates met from all the ships in Lord Howe's cabin. Two petitions were presented, in respectful but firm language,—one to the House of Commons, the other to the Board of Admiralty,—demanding a small increase of pay, and of the Greenwich pensions, and a redress of some grievances; in all very reasonable demands. These were readily granted by government, and order was restored without a drop of blood being shed. A revolt of a more licentious nature broke out soon after in the fleet at the Nore, where the seamen, on the refusal of their demands, seized some vessels laden with provisions, and, mooring their ships across the Thames, threatened to cut off all communication between the mouth of the river and the metropolis. Government, to guard against the worst extremes to which the mutineers threatened to proceed, ordered all the buoys to be removed from the mouth of the Thames, whilst furnaces, and red-hot shot, were kept in readiness at Sheerness, and at Tilbury, in case of the forts being attacked. The firmness of government in persisting to refuse their demands, finally prevailed over these improvident and misguided insurgents, who at length struck the red flag of mutiny, and, after struggles on board several of the ships, the ringleaders (of whom the chief was Richard

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without loss of time, to state those total amounts, and to report the total result thereof. Your committee find, upon such examination, that the total amount of outstanding demands on the Bank, on the 25th of February last, (to which day the accounts could be completely made up,) was £13,770,390; and that the total amount of the funds for discharging those demands, (not including the permanent debt due from government of £11,686,800, which bears the interest of 3 per cent.) was, on the same 25th day of February last, £17,597,280: and that the result is, that there was, on the 25th day of February last, a surplus of effects belonging to the Bank, beyond the amount of their debts, amounting to the sum of £3,826,890, exclusive of the above-mentioned permanent debt of £11,686,800, due from government. And your committee farther represent, that, since the 25th of February last, considerable issues have been made by the Bank in bank notes, both upon government securities, and in discounting bills, the particulars of which could not immediately be made up; but as those issues appear to your committee to have been made upon corresponding securities, taken with the usual care and attention, the actual balance in favour of the Bank did not appear to your committee to have been thereby diminished.—The second report, Tuesday, 7th March, thus concludes: That, in their opinion, it is necessary to provide for the confirmation and continuance, for a time to be limited, of the measures taken in pursuance of the orders of council on the 26th of February last, submitting to the wisdom of parliament to determine for what limited time it may be necessary that those measures should be continued.

* The nation, that is, the part of the nation who had bank notes, were the creditors of the Bank; they were now compelled to take paper currency in discharge of a debt. Let us hear what Mr Burke says,—"As soon as a nation compels a creditor to take paper currency in discharge of his debt, thence is a bankruptcy."

Parker) were seized by the loyal part of the crews, and put to death after a solemn trial.

But the gallantry and success of our seamen formed, during this year, a brilliant contrast to their temporary dereliction of duty. On the 14th of February, Admiral Jervis, while cruizing off Cape St Vincent, on the coast of Portugal, with fifteen sail of the line, received intelligence of the approach of a powerful Spanish fleet, which was found to consist of twenty-seven ships of the line. Unintimidated by superior numbers, the British admiral bore down upon the enemy with a press of sail, and, after passing with electric celerity through their line before it was yet formed, tacked about, and separated one-third of them from the main body. After a furious engagement of four hours, he captured two ships of 112 guns each, one of 84, and one of 74. Only 300 of the victors were lost in this memorable battle; while the loss of the Spaniards, in killed, wounded, and prisoners, could not be less than 6000. The honour of a peerage was deservedly bestowed on Sir J. Jervis, and the title of St Vincent commemorated the scene of his glory.

In the course of the summer, an unsuccessful attempt was made upon the island of Teneriffe, by a body of men that were landed from the squadron of Nelson, who had eminently distinguished himself in the late action. After an ineffectual attempt to storm the fort of Santa Cruz, the assailants were suffered to retire to their ships, rather from the respect than the fear which the Spaniards felt for their rash valour. But the affair cost nearly as many lives as the splendid victory of St Vincent, besides the lives of some brave officers, and the *arm* of Nelson.

The Dutch fleet, which had long been blocked up in the Texel by Admiral Duncan, ventured out in the month of October, when the British had retired for the purpose of refitting. But Duncan hastily returned from Yarmouth, and found the Dutch fleet, under De Winter, amounting to fifteen sail of the line, drawn up off the coast, adjacent to the village of Camperdown. By the accustomed manœuvre of breaking the hostile line, he engaged the main body under De Winter alone, and prevented his retreat; while Storey, the Dutch vice-admiral, fled basely, with the greater part of his division, soon after the commencement of the action, and entered the Texel in safety. De Winter, with all his remaining crews, fought with desperation, but at length was compelled to strike, with eight others of his line, and two frigates, to the overwhelming force of the British. The carnage on both sides was great, but on the side of the Dutch it was terrible, five hundred men being killed or wounded on board two of their ships only.

Early in this year, Trinidad was captured by a force under Sir Ralph Abercromby, and a fleet under Admiral Harvey. In the Gulf of Pavia, the Spaniards set fire to a fleet of four ships of the line, to prevent their falling into the hands of the captors, but one of them escaped the conflagration.

After the last disastrous campaign of 1796, the Austrian armies in Italy were reinforced with astonishing promptitude, and the imperial general, Alvingi, had even forced the French to fall back. It was then that Bonaparte assumed the command of the army in Italy, and completely beat the Austrians at Rivoli. Mantua was by the issue of this engagement compelled to capitulate, and the shattered remains of the Austrians retired across the Adige, or retreated to Trent. Bonaparte then advanced against the Papal forces, and carrying his arms to Tolentino, reduced his holiness to sign a humiliating peace at that place, as the price of which he paid 30,000,000 livres, and the most valuable manuscripts, statues, and pictures, in his dominions.

Successes of the French under Bonaparte.

In the northern parts of Italy, the Austrians were again enabled to take the field, in considerable force, under the Archduke Charles. But in the face of their reinforced army, Bonaparte passed the Tagliamento, and gaining a succession of victories, compelled the Archduke to retreat towards the Venetian territory, leaving Palma, Nuova, Udine, and the adjacent territory, to the mercy of the French. The main body of the French soon after entered the Austrian dominions, Friuli, and the garrison of Gradisca, having surrendered, Triest, the chief town of Carniola, and the whole province of Istria, bordering on the Adriatic, were added to the republican conquests. The French armies continued to advance to within 120 miles of Vienna, when the Archduke accepted a suspension of arms. The preliminaries of a peace between France and Austria were signed at Leoben in Stiria, in April, and a definitive treaty in the following October. By this treaty, the emperor completely renounced the Netherlands, and acknowledged the Cisalpine republic, erected on the French conquests in Italy. By this event, England was left to combat alone with an enemy which had, by force or intimidation, withdrawn Prussia, Germany, Spain, Holland, and the Italian States, from our alliance. Ministers, either intimidated at the alarming solitude in which we now stood as the opponents of France, or desiring to throw the odium of the war upon our enemies, announced, for the third time, their inclination for peace. An answer was returned by the French Directory, expressing an equal desire for peace, but requiring that the negotiation should be for a definitive treaty. Lord Malmesbury arrived at Lisle, and was there met by three French plenipotentiaries, (Messrs Latourneur, Maret, and Pleville.) By accepting French passports, purporting that he was received for the purpose of negotiating a definitive treaty, the British government certainly had virtually acknowledged that his Lordship was invested with powers for more than a preliminary treaty. After a residence of two months at Lisle, the negotiation was broken off by an order from the Directory for his Lordship to depart. The French complaining that he was not invested with sufficient powers, and the British complaining that the Directory had demanded a restitution of all that we had conquered from them and their allies in the course of the war.

Treaty of Leoben, between the French and Austrians.

Negotiations for peace under Lord Malmesbury.

Secession of the opposition members from parliament, 1798.

Tired with an unavailing contest against the minister's uniform majorities, the chief speakers of the opposition absented themselves from most of the debates in the session of 1797–8. Mr Fox, however, took his place on some occasions of peculiar importance,—he strongly combated the minister's plan of finance for 1798, which included the imposition of the triple assessed taxes, and he gave his support to the yet unsuccessful efforts of Mr Wilberforce for the abolition of the African slave trade. In resisting the unpopular assessed taxes, the minister was assailed by so many objections, that he was forced to modify them by numerous alleviations, adapted to particular cases. The consequence was, that they fell three millions short of their expected produce; and Mr Pitt, in his second budget for the year, was obliged to supply the deficiency by fresh burthens on the exports and imports of the country. To these, and other resources, was added a scheme of voluntary contributions, of which the eventual product was a million and a half. As the country was now confidently menaced by the French with invasion, the army and navy were powerfully recruited, while volunteer associations, which had already been formed throughout the country, became more numerous and assiduous in their application to duty. These threats of invasion, as far as it related to Britain itself, was rather calculated to rouse the spirit than the fears of a free and armed people; but the state of Ireland materially aggravated our danger.

State of Ireland.

Since the refusal of Roman Catholic emancipation, and the recal of Earl Fitzwilliam from the viceroyalty, the great mass of the society denominated the United Irishmen, had been initiated in a secret conspiracy against the government, which before had been far from general, but confined to the views and designs of a few of its individuals. By the system of severity which was pursued in attempting to discover the machinations of this society—by the use of torture to elicit confessions of those implicated in it, and by the distinguishing persecution set on foot by the Orange faction, the Catholics were at once driven by their enemies, and deluded by factious demagogues, into rebellion. In 1797, the United Irishmen projected a general rising, which would have taken place if the assistance promised by France through their agent Dr MacNiven, had arrived. An armament for their support was fitted out in France during the same year, and another in the ports of Holland, but the latter was the only one that ever put to sea; it was to be covered by the fleet of the Texel, which Duncan defeated.

Civil war in Ireland.

In 1798, when a general rising had been concerted, their intentions were fortunately betrayed to government; fourteen of their delegates, and three members of the Irish Directory, were arrested. A fourth, Lord Edward Fitzgerald, died of the wounds which he received in resisting the officers who seized him. Such discoveries, without preventing the rebellion, made it partial and ineffective. Instead of a general rising, which had been intended, the rebellion broke out by an abortive attempt on the town of Naas (on the 24th of May), where the insurgents were instantly dispersed. At Kilcallen and Rathfarman, the rebels were equally unsuccessful. On the 26th of May, a large division of their force was defeated at Tallaghhill, and they were repulsed in two attacks upon the town of Curlow and Kildare. In the county of Wexford, they were more successful; they carried the town of Inniscorthy, sword in hand, and in the town of Wexford exercised some barbarous retaliations on their antagonists the Orangemen. Here they released from confinement Bagnal Harvey, who was appointed commander in chief of their disorderly army. Flushed by their successes, they advanced upon the town of Ross, and by their resolution and weight of column, cleared the bridge and entered the streets of the town; but numbers having entered the houses and got intoxicated, they were repulsed with immense loss. General Lake was, by that time, advancing with large reinforcements of the regular army, and attacked their main body, consisting of nearly 20,000 men, within a mile of Inniscorthy, upon an eminence called Vinegar-hill. After a severe engagement, the rebels fled with precipitation, sustaining an immense loss, while that of the king's troops was comparatively trifling. Rebellion was thus quelled in the south. In the north, it was subdued with less difficulty, although it was very general throughout the counties of Down and Antrim. The insurgents, under a leader of the name of Monroe, to the number of 7000, were defeated at Ballynahinch, and tranquillity was completely restored.

Attempts, however, were made by the French to re-animate the expiring flame of rebellion. About 900 men, under the command of General Humbert, landed at Killala on the 22d of August. Proceeding rapidly to Castlebar, they were joined in their march by numbers of the peasantry, and repulsed a force more than thrice their number, under General Lake, whom they forced to retreat with the loss of six pieces of cannon, and continued advancing towards Tuam. This small band of Frenchmen, who in the course of 17 days had penetrated a considerable way into the kingdom, held for some time the undisputed possession of Connaught; but at last, a column of our troops under Colonel Crawfurd forming the advanced guard of Marquis Cornwallis's army, came up with them as they were retreating to Ballinamuch, and after a short, but sharp contest, forced them to surrender as prisoners. A French squadron of one ship of the line and eight frigates, with troops and ammunition on board, destined for Ireland, was on the 11th of October taken or dispersed by the squadron of Sir John Borlase Warren. Among the prisoners taken on board one of the captured vessels, was Theobald Wolfe Torie, one of the earliest founders of the society of United Irishmen, who being tried and condemned, avoided the ignominy of public execution by a voluntary death.

While troops were assembling on the northern shores of France, which assumed the ridiculous appellation of the army of England, a more serious and secret expedition was fitted out for Egypt, which sailed from Toulon under the command of Bonaparte, on the 30th of May. The army, composing nearly 300 sail, having on board 40,000 of the chosen troops of France, arrived on the 9th of June off Malta; the knights of this far-famed spot, which had once been the bulwark of Christendom, capitulated after a spiritless show of defence, and the French obtained an immense military spoil with more than a thousand pieces of cannon.

Lord St Vincent, while he continued to watch the Spaniards on the western coast of Europe, detached Admiral Nelson with 13 ships of the line and a 50 gun ship in quest of the French, who, after twice crossing the Mediterranean, learnt that they had been seen on the coast of Egypt. Hither he steered his course, and coming in sight of the Pharos of Alexandria, beheld the fleet of Admiral Brueys, consisting of 13 line of battle ships in the bay of Aboukir, with the headmost ship as close as possible to a shoal to the north west, and the rest of the fleet describing a curve along the line of deep water, flanked by numerous gun boats, and a battery of shells and mortars on an island in their van. On the 1st of August, Nelson having reconnoitered the enemy, determined on a dangerous, yet decisive manœuvre, to which he could only be prompted by that high and heroic ardour which borders on temerity. Having made himself acquainted, by repeated trials, of the depth of water near the shore, the signal was made (and boldly executed,) to turn the head of the French line, by which means the whole of the enemy's van was attacked on both sides before any of the French ships, rendered useless by being at anchor, could move to their assistance. The action commenced a little before sunset, and victory declared in favour of England. The contest, however, was long and tremenduous. At midnight, Admiral Brueys' ship, L'Orient, which fought with an energy worthy of her size, (she bore 120 guns,) blew up with an explosion that was heard ten leagues from the scene of action. The cannonading ceased on both sides for about ten minutes, with a pause expressive of that awe which the dreadful spectacle had inspired. After midnight the firing was at intervals suspended, from the excessive fatigue of the combatants. At morning the victory was complete. Of a fleet of 13 sail of the line, the Admiral's ship of 120 guns and a 74 were burnt; two 80, and seven 74's were captured; two ships of the line and two frigates escaped by flight, but were soon after taken; so that the whole armament was either captured or destroyed.

The debarkation of Bonaparte with his staff and his vanguard, had been effected exactly a month before the battle of the Nile. After issuing a pompous proclamation, declaring, that he came to deliver Egypt from the yoke of the Mamelukes, the French commander took Alexandria by storm. Rosetta soon after surrendered, after which he proceeded to Grand Cairo. The Mamelukes twice gave him battle, and by the impetuous charges of their cavalry, put the fortitude and discipline of his troops to the hardest trial; but the hollow square of the French infantry was found impenetrable to the fury of their antagonists; and a victory, which he gained some miles from the Pyramids, decided the fate of Lower Egypt. Mourad and Ibraham Bey, the chief leaders of the Mamelukes, fled, the former to Upper Egypt, the latter to Syria. In the summer, an armament under Capt. Popham, with a body of troops commanded by Col. Coote, bombarded Ostend, and landing near the town, did considerable damage to the basons, gates, and sluices of the Bruges canal. But after this petty service had been achieved, the troops were prevented from reimbarking by the fury of the wind and surf, and surrendered, after a short contest, to a superior force of the enemy.

An expedition to Minorca proved more successful. General Stuart, with only 800 men, debarked from admiral Duckworth's squadron, and having forced, in rapid succession, the most important posts of the island, with the aid of the frigates, and the co-operation of the seamen and marines, obliged the governor to capitulate for the surrender of the whole island.

1798.
Evacuation of St Domingo by the British.

About the same time, the British government finding that St Domingo could not be retained without immense sacrifices, determined to abandon it. General Maitland, therefore, entered into a compromise with Toussaint Louverture, (formerly a slave, but now commander in chief of the colony,) by which the British consented to leave the island, on condition of the lives and properties being granted to such white inhabitants as chose to remain. The victory of the Nile produced a sensation over all Europe, which was felt at Rastadt, where negotiations had been vainly conducted for a general system of continental indemnities, after the armed truce of Campo Formio. The attacks which were made by France upon Switzerland, Rome, and Egypt, afforded a just ground of quarrel to Austria, Naples, and the Ottoman Porte; while the accession of Paul, Emperor of Russia, who had lately succeeded his mother Catherine II., gave new hopes to the confederates. Hurried on by an imprudent confidence, the king of Naples first took the field, and advanced against the French at Rome, who retired at his approach; but in the course of a few weeks, his whole army (commanded by the imperial general Mack,) was totally routed and dispersed, his capital taken by storm, and he himself obliged to fly for refuge to Sicily, abandoning his continental dominions.

The King of Naples driven from his dominions by the French.

Treaty of alliance signed at St Petersburgh.

Before the close of the year, a provincial treaty was signed at St Petersburgh, by which the emperor of Russia was to afford a succour of land forces, amounting to 45,000 infantry and cavalry; in consideration of which, his Britannic majesty engaged to furnish the emperor a subsidy of L. 75,000 sterling per month, from the day on which the Russian troops should have passed the frontier; another subsidy of L. 37,000 per month for extra charges; and a further sum of L. 225,000 in three months, to expedite the march of the troops to be employed.

Proceedings in parliament.
1799.

The confidence with which the minister spoke of our new alliance, when the subject of the Russian subsidy came before parliament, was met by animadversions of a very different nature from the opposite side of the house. However dazzling the rising coalition might appear, it was observed, we had seen a former one of still more imposing promises broken to pieces by the enemy. The very name of subsidy, implied selfishness in the powers who were to join us. If the interests of Europe were involved, it became its powers to fight for their own security, and not to become the hirelings of Britain. The supplies voted for 1799, amounted to thirty-nine millions. Ten millions of this sum Mr Pitt proposed to raise by a tax upon income, in lieu of the assessed taxes, which had failed in productiveness. Every person, whose income exceeded L. 60 a year, was to be subject to this tax. Incomes from L. 60 to L. 100, were to be taxed in a trifling proportion. Those above L. 100 were subjected to considerably more. From those of L. 200 and upwards, a tenth part was to be levied. If the statement of income given in by any individual should be suspected by the commissioners of this tax to be false, they might examine upon oath. An appeal might lie from the lower to the higher commissioners, but with the latter the decision should be final. The land forces voted for this year, was somewhat larger than for the former year. For the navy, 120,000 men were required.

In proportion as the enemies of the country laboured to separate the ties of connection between

Bonaparte made First Consul of France.

In the month of October 1799, all Europe was astonished by the appearance of Bonaparte in Paris, after having returned from Egypt, like a spirit from another world. His return was quickly followed by his usurpation of the supreme power in France, under the title of First Consul; and the first use he made of his sovereignty, was to convey a direct offer of peace to this country, in a letter written with his own hand to the king of Great Britain. His Britannic majesty refusing to depart from the accustomed forms of diplomacy, replied, through his secretary for foreign affairs, to the proposition, that he would seize the first favourable opportunity for a peace, but that at present there appeared to be none. The conduct of ministers in advising the king to this unfavourable answer, met with the severest censures of the opposition at the opening of the session of 1800. The emperor Paul, already tired of a war in which he had reaped neither benefit nor glory, had recalled Suwarrow with the remnant of his army, which had been driven out of Switzerland from the scene of action; and among the subsidiaries of Britain for the year 1800, he was no longer named. Negotiations were, however concluded, by which the troops of the empire of Germany, and of the elector of Bavaria, were taken into pay.

He offers peace to Britain, which is refused.

The union carried in the Irish parliament. 1800.

The Irish parliament, having assembled on the 15th of January, the subject of the union was again brought forward; and it was found, that the strength of the anti-unionists was diminished in the Irish commons to 96 voices. On the 5th of February, the whole plan of the union was detailed by Lord Castlereagh, the principal Irish secretary of state, who, after displaying the general principles of the measure, proposed eight articles as the foundation of the union. The 1st article imported, that from the first of January 1801, the kingdoms of Great Britain and Ireland should be for ever united under one kingdom. The 2d, That the succession to the imperial crown should continue limited and settled, according to the act of union between England and Scotland. The 3d, that the united kingdom should have one parliament. The 4th, that four lords spiritual of Ireland, by rotation of sessions, and 28 lords temporal, should be the number of Irish peers who should sit in the united parliament. The 5th, That the churches of England and Ireland should be united into one Protestant Episcopal church, the doctrines and discipline to remain for ever the same. The 6th article provided for a fair participation in commercial privileges; for which end it was however thought necessary to impose certain countervailing duties. The 7th article left to each kingdom the separate discharge of its public debt already incurred; and ordained, that for 20 years from the time of the union, the national expence should be defrayed in the proportion of 15 parts out of 17 for Great Britain, and 2 for Ireland. The 8th article provided, that the laws and courts of both kingdoms, civil and ecclesiastical, should remain as they were now established, but subject to future alterations of the united parliament. These articles were voted by the peers and commons of Ireland, and on the 2d of April were submitted to the British legislature. In the British as in the Irish parliament, they again encountered the warmest opposition, but finally prevailed. Having been remitted to the latter parliament, they suffered a few immaterial alterations, and, on the 2d of July, were ratified by the royal assent.

The offers of peace which Bonaparte held out to Britain, he extended to her allies; but by them also they were rejected. Flattered by the deluding promises of success in Italy, the Emperor of Germany was induced to continue the war; but Bonaparte resuming, in that quarter, the command in person, victory, as before, waited on his standard; and the fatal battle of Marengo, in Italy, decided the campaign. An armistice was proposed by the defeated Austrians, and granted, on condition of Genoa, Milan, Tortona, Alessandria, Ceva Savone, Urbino, and other important places, being delivered into the hands of the French. Moreau had led another army of France across the Rhine, defeated the Austrians at Blenheim, and penetrated to the Danube, when the extension of the armistice to Germany made him pause in his career of victory.

The English maritime forces, during this year, made a descent on the coast of Bretagne, and destroyed the forts of Quiberon. The Dutch settlements of Goree and Curaçoa were also added to our conquests. Two unsuccessful attempts were made upon the Spanish coast. The first by a force under General Pulteney, which debarked from a squadron of Sir J. B. Warren, at Ferrol, but which retired, after a slight skirmish with the enemy, the place being found to be too strong for assault. A still larger armament, under Lord Keith and General Abercromby, appeared before Cadiz; but the plague, which raged in the garrison, and the tempestuous weather on the coast, induced them to retire. They proceeded to the Mediterranean, and happily succeeded in wresting Malta from the hands of the French.

The first continental armistice expired in September, when Austria, unable to renew the combat so soon, dearly purchased a prolongation of the German truce, by surrendering the three fortresses of Ulm, Philipsburg, and Ingolstadt. Hostilities being renewed, at the close of the second armistice, a few partial successes attended the Imperial arms in Franconia; but the contest was speedily and disasterously closed by the battle of Hohenlinden, and by the contemporary victories of General Brune in Italy. At the same time, Macdonald being in possession of the Tyrol, could either turn to strengthen the Italian army, or to join Moreau, who advanced within seventeen leagues of Vienna. Compelled by these disastrous circumstances, the Emperor signed a peace with France, by which he ceded the Belgic provinces, all his territories on the left banks of the Rhine, and all the rights he possessed in Italy over those parts which were now comprehended under the Cisalpine and Ligurian republics.

To increase the gloom of our affairs, the insane and capricious Emperor Paul commenced a dispute with Great Britain, on pretence of her maritime encroachments; and, without warning, laid an embargo on all the British shipping in his ports. This embargo he revoked; but again imposed it, in consequence of a new quarrel respecting Malta, the Russian monarch having assumed the title of Grand Master of the Knights of that island. Sweden and Denmark speedily acceded to a convention against us, in support of what they styled the maritime rights of neutral nations.

Such was the state of public affairs at the close of 1800; a period also memorable for the severest scarcity that had been experienced in the country since the famine at the close of the 17th century; while the ports of the Elbe, the Weser, and of the Baltic were shut against our commerce, and prohibited from relieving us with grain.

Amidst these discouraging circumstances, parliament assembled on the 22d of January, 1801. The great recent events, the union with Ireland, and the hostile convention of the northern courts, furnished matter sufficiently interesting for the royal address, and for the debates of both houses. In the House of Commons, Mr Grey still continued to declare his unfavourable opinion of the boasted measure of the union. With regard to the northern confederation against us, though he could not acquit the Emperor of Russia of violent and unjustifiable conduct, he begged to draw a distinction between the case of that potentate and of the other powers in dispute with us. He expressed his doubts of the justice, as well as the importance of our claims on the neutrals, and of our high pretensions to the right of search. Such claims had been wisely suspended in the year 1780, when the country was in a much less dangerous situation than at present, without any evil consequences having resulted. Mr Pitt, in reply, defended the practice of searching neutrals, which it might now be incumbent upon us to vindicate by force of arms, on the plea of right, as well as of expediency. The principle on which we were now acting, had been universally admitted, and acted upon as the law of nations, except in cases where it had been restrained and modified by treaties between particular states. Those very exceptions were proofs what the law of nations would be, if absolute and unrestrained by such particular treaties. And with regard to the particular treaties between ourselves and the present hostile confederates, they inculcated the right of search in strict and precise terms. On the ground of expediency, he asked, whether, by desisting from search, we ought to allow the navy of our ancient enemy to be supplied and recruited, blockaded ports to be relieved, the treasures of America to be brought in neutrals from South America to Spain, and the stores of the Baltic to Brest or Toulon.

This was one of the last questions which Mr Pitt had to debate in his ministerial capacity. The executive council of the kingdom was now on the eve of dissolution: the minister and his colleagues, Lord Grenville, Lord Spencer, Mr Windham, and Mr Dundas, having determined to resign. Their avowed reason was, their inability to accomplish the full emancipation of the Irish Catholics. So much had been already granted to that body of men, that Mr Pitt had deemed it unsafe to make farther concessions, until the union should be effected. When that measure had been accomplished, every obstacle in the way of emancipation seemed to be removed, but the scruples of his majesty had been opposed to their wishes. Such was the cause of their resignation, held out by ministers to the nation and the parliament; but the strongest doubts were suggested by many, whether the obvious necessity for attempting to make peace with France, and their conscious inability to conclude favourable terms, had not been weightier motives than the business of the Catholics. A new administration was speedily formed, in which Mr Addington was first lord of the treasury and chancellor of the exchequer; Lord Hawkesbury and Lord Pelham were secretaries of state; and the Earl St Vincent first lord of the admiralty. From the number of Mr Pitt's friends, who were left in the subordinate offices of the new administration, and from Mr Pitt's language in parliament, it was suspected that he held unavowedly an influence in their councils. Before his resignation, the house had voted the supplies of the year, which he estimated at forty-two millions.

Formation of a new ministry.

Embargo laid on Russian, &c. vessels in British ports.

At the commencement of the year, an embargo was laid on all Russian, Danish, and Swedish vessels in the ports of Great Britain; but the court of Berlin, although a party to the league, was, for particular reasons, treated with deference and respect. It was resolved to strike with promptitude, since the combined fleets of the north, had they acted by simultaneous movements, could have collected nearly 80 sail of the line,—a power, which was made more formidable by the narrowness of their seas, and the dangers of their coasts.

A British fleet, under Admirals Parker and Nelson, sails for the Baltic.

On the 11th of March, a British fleet of 18 line of battle ships, with a great number of inferior vessels, sailed from Yarmouth, under the command of Admiral Parker, assisted by Vice-admiral Nelson and Rear-admiral Totty. The commanders were instructed to direct their efforts against the capital of the Danish dominions, if our new plenipotentiary Mr Vansittart should fail in detaching Denmark from the hostile alliance. On the 30th of March the British fleet passed the Sound, and anchored five or six miles from the island of Huen. During the passage of the straits, a remote, but ineffectual cannonade was exchanged with the fortress of Cronenberg.

Lord Nelson entrusted with the attack upon Copenhagen.

Lord Nelson having offered his services for conducting the attack, was judiciously entrusted by Admiral Parker with an enterprize worthy of his genius and intrepidity. On the 2d of April, having weighed anchor, and made the signal for attack with 12 ships of the line, he advanced to force the approaches to Copenhagen, which were defended by eleven floating batteries, a numerous artillery on the islands of the Crown and Amak, and by a numerous fleet of ships of different sizes, containing six of the line. Owing to the intricate navigation of the narrow scene of action, three of our chief ships, which were intended to silence the batteries of the crown isles, were prevented from taking the station assigned to them, and although they performed considerable service, this circumstance considerably diminished the success of the day.

Total defeat of the Danish fleet and batteries.

The action began at five minutes past 10 in the morning. The British van was led by Captain George Murray of the Edgar, and his example of intrepidity was quickly followed by every officer and man in the fleet. After an action of four hours, the fire of the whole Danish fleet was silenced, and the majority of their vessels were either burnt or taken. As soon as the fire had slackened, and Lord Nelson had perceived that the ships and floating batteries were in his power, although the fire from the islands still continued, he sent a letter to the prince royal of Denmark, addressed to the Danes, the brothers of the Englishmen, in these words:—" Lord Nelson has directions and Mr Windham in the commons, denounced the peace as the most degrading and dangerous evil that could have befallen the country. They declaimed against the aggressions of Bonaparte, and the tame and imbecile security of ministers. Mr Fox and the majority of his party exhorted to cultivate peace, and, while they deplored the humiliation of the continent, thought that it could not be saved by our interference. The ministry seemed divided, between the views of their divided opponents.

Aggressions of Bonaparte.

The great aggressions of Bonaparte, both pending and after the treaty of Amiens, on which those alarms were founded, were his dispatching a large fleet and armament to the West Indies; his assumption of the dominion of the Italian republic, in his own person; the annexation of Parma to his dominions; his treaty with Spain, by which Louisiana was ceded to France; and his occupation of Porto Ferrajo, and the island of Elba in the Mediterranean. His harsh remonstrances against the liberties of the British press, and his insisting on the unfortunate emigrants of France being driven from the hospitality of our shores, were rather indignities than injuries; but the public indignation of Europe was roused to the highest pitch against him, when Switzerland fell under his yoke. On this occasion the British ministry ventured to interpose. They sent Mr Moore to Constance, with a view to stimulate the exertions of the Swiss, who arrived there on the 31st of October, (1802,) but found not a trace of resistance existing in the country. After the subjugation of Switzerland, they seem to have dropt for a time the intention of quarrelling with the French ruler, and dispatched orders to surrender all our conquests in pursuance of the treaty of Amiens. Of this measure, they soon after repented, and sent out counter orders to retain our conquests. While it was uncertain whether the latter dispatches would arrive in sufficient time to prevent a violent resumption of those ceded places, the discussions respecting the restoration of Malta were continued, and furnished at last the avowed occasion of the war.

Subjugation of Switzerland by the French.

Dispute respecting Malta.

It had been stipulated in the treaty of Amiens respecting this island, "that a grand master should be elected in full chapter by the knights of St John of Jerusalem; that a Maltese langue should be established in the room of the French and English, which were to be for ever abolished; that the British troops were to evacuate the island, provided that there were a grand master or commissioners fully empowered to receive the possession, and that a force of 2000 Neapolitan troops, which were to be furnished by his Sicilian majesty, should have arrived in the island as a garrison; that Great Britain, France, Austria, Russia and Spain, should guarantee this arrangement, and the independence of the island; that these powers should be invited to accede to it, and that the Neapolitan troops were to remain till the knights had raised a sufficient force to protect the island." It might well be remarked, that if Britain desired the independence of Malta, this treaty was not the best calculated to preserve it. The property of the knights was known to lie in other countries, and they were not capable of defending their territory. The revenues of the order had been already confiscated in France and Lombardy. Pending the treaty, its property in Spain was also confiscated, and that in Portugal was likely to follow the same fate. Yet did the British minister, in the open view of these circumstances, conclude the treaty.

During the first part of the discussions respecting Malta, it appears that Bonaparte, confiding in the pacific wishes of the British government, was anxious only for the positive stipulation of the treaty, viz. our surrender of Malta, the conditional part, that is, the guarantee of the independence of the island by the powers of Europe, he hoped would have been dispensed with, and that the island would thus be left to his power and influence, as a stepping-stone to Egypt, the great object of his wishes. As his strides to universal dominion in Europe became bolder, and more rapid, he perceived an alarm in the British councils, which he probably feared might occasion a war prematurely for his purposes. He wished, at all events, to throw the appearance of aggression on our court, and, instead of delaying the guarantee of Malta, used his influence so successfully at Petersburgh, that the emperor Alexander gave in his projet respecting the island, and agreed to guarantee its independence. The British court, which had so lately pushed all Europe to guarantee this independence, were now solicitous to find pretexts for rejecting the sponsors. Alexander's projet was sent back for alteration; and an objection to the very restoration of the island to the knights, founded on the dislike of the inhabitants to their government, was studiously brought forward after the treaty had been signed. On the 25th of January 1803, M. Talleyrand informed Lord Whitworth, that the difficulties respecting the emperor Alexander's guarantee of Malta would be speedily removed, and requested to know the intentions of his Britannic majesty respecting the 10th article of the treaty. From the embarrassment of this question, our ambassador was delivered by the conduct of the first consul, who had published the report of his military missionary Sebastiani, a report, which brought to light his design of occupying Egypt and the Ionian islands. Britain declined any promise about Malta, till this offensive report should be explained.

At this unfavourable stage of the negotiation, a message came from the king to parliament, stating, that such preparations had taken place in the ports of France, as called upon his majesty to increase his armaments by sea and land. The French government protested, that they had no view in these preparations, but the quieting their own colony of St Domingo.

The resolution of France, to consider our refusal to evacuate Malta as the signal for hostilities, was announced in the ever memorable interview, when the French ruler insulted Lord Whitworth before all the ambassadors of Europe. Yet, as it was evidently not the interest of the first consul to go so soon to war, he recovered his irritation so far as to protract the negotiation. In the ultimatum offered by Britain, it was proposed, that we should retain Malta for ten years. France in return, proposed, that it should be ceded to Russia. Lord Whitworth left Paris with this offer to return thither no more, war being declared against France by his Britannic majesty, on the 18th of May 1803.

The invasion and occupation of Hanover by the French, was the most important of the early fruits of the war. (See HANOVER.) The preparations on the two nations, our accustomed superiority was maintained. On the channel station, Admiral Cornwallis menaced or blockaded Brest; in the south, Sir John Borlase Warren intercepted the trade and communication of Toulon; Sir James Saumarez cut off the trade of Cadiz; Dickson and Greaves menaced the Dutch shores; Admirals Keith and Bickerton possessed the Levantine and Egyptian seas; Duckworth and Seymour protected our West India islands; and Nelson threw back the terrors of invasion on the shores of France.

The Dutch colony of St Eustatia was captured early in the course of the year by Captain Perkins of the Arab, and a detachment of the 3d regiment of foot under Colonel Blunt. Ternate, the most considerable of the Molucca islands, surrendered to the arms of the East India Company.

In the Mediterranean, Sir James Saumarez finding three French ships of the line and a frigate at anchor near Algesiras, embraced the bold resolution of cutting them out. But the batteries on shore opening a tremendous fire, and several ships of his fleet being disabled from succouring those which commenced the attack, he was obliged to desist from the attempt, and to leave the Hannibal, a 74, which had struck on a shoal beneath the Spanish batteries. The news of this disaster occasioned a boundless exultation in France; it was publicly announced in the Parisian theatres, that six British ships of the line, had been beaten by three French ships, and one of the British ships taken. No allusion was made to the Spanish batteries.

With his few remaining ships, Admiral Saumarez did not hesitate to follow a fleet of the enemy from Cadiz, amounting to ten French and Spanish sail of the line. A cluster of these were attacked by two British ships, on the night of the 11th of July, and in a short time it was discovered that two of the Spaniards were on fire. Two thousand four hundred men were on board these vessels, inextricable from destruction by friend or foe. Saumarez continued to pursue the enemy, who dispersed before him, but two French seventy-fours were made prizes. The boldness and dexterity of this exploit, deservedly received the thanks of parliament.

After consolidating his power, and humbling the great nations, the establishment of peace with England could not be unwelcome to Bonaparte, to whom it would necessarily bring popularity; while the protraction of the war eventually exposed him to farther losses of his colonies, and demanded from him an attempt at the hopeless invasion of England, or a tacit acknowledgment that it was beyond his power. It is needless to recapitulate the circumstances which made the prospect of peace acceptable to the administration of Britain, as the most wished for boon which they could confer upon the great bulk of the country.

In the midst of these hostilities, flags of truce were daily passing amidst vessels of war, from both sides of the channel, and couriers passing between London and Paris.

M. Otto, who had been agent for the release of prisoners, still continued in the British capital; and soon after the preliminaries of peace had been ratified between the French and Austrian government, Mr Merry was sent to Paris as an agent of the British ministry. At length the secretary of state for foreign affairs, after a long and mysterious negotiation with M. Otto, suddenly announced the signature of preliminaries of peace with France, Spain, and Holland. The intelligence spread such universal joy, as never was remembered in the country; and when the French plenipotentiaries arrived with the ratification of the terms, their carriage was drawn through the streets by the populace. Amiens was the place assigned for concluding the definitive treaty: thither the Marquis Cornwallis went as plenipotentiary from Britain, Don John Azara from Spain, Joseph Bonaparte from France, and Roger John Schimmelpinnich from the Dutch republic.

Peace of Amiens. March 27. 1802.

The definitive treaty was signed at Amiens on the 27th of March 1802. Great Britain ceded by this peace all the colonies which she had gained during the war, except the Spanish island of Trinidad, and the Dutch settlements in Ceylon. Egypt was to be restored to the Porte, and the integrity of the Turkish empire was guaranteed. The dominions of our ally, Portugal, were to remain entire; and the French troops were to evacuate the territory of Naples, and of Rome. By an agreement, however, which was admitted in the course of the treaty, the limits of French Guiana were extended, and the dominions of Portugal curtailed, conformably to the treaty of Badajos, which had been concluded between France and Portugal in the preceding year. With respect to Malta, it was stipulated, that no French or English langue or class of knights should be allowed; that one half of the soldiers in the garrison should be natives, and the rest furnished for a time by the king of Naples; that the independence of the island should be guaranteed by France, Great Britain, Austria, Spain, Russia, and Prussia; and that its ports should be free to all nations.

The Prince of Orange was to receive indemnities for his losses; but it appeared that the Batavian republic was not made responsible for this indemnity, nor were the sources from whence it was to come distinctly ascertained.

While the nation at large was too much delighted at the prospect of peace, to criticise the terms with severity, there was a party strong in talents, if not in numbers, who filled the nation and the parliament with invectives at the treaty of Amiens. Such, however, as that peace was, we are probably justified in saying of it with the greatest statesman of the age, that "we shall probably never look upon its like again."

Meeting of Parliament. 1802.

When the united parliament commenced their second session, in the winter of 1802, the nature of their first measures and debates cast a deep shade of uncertainty over the hopes of peace which the nation had fondly cherished. The ministers called for, and obtained, a vote for 50,000 seamen for the ensuing year, and 129,000 land forces. For the magnitude of this peace establishment, they held out only vague and general reasons. Unable to disguise their own fears, they increased those of the public by an indistinct allusion to the danger. But whilst a part of the accustomed opposition in parliament, deprecated the peace establishment, which we have mentioned, as unnecessarily large, there was a party the most zealous promoters of the late war, who sounded a more distinct note of alarm. Lord Grenville in the peers, Lord Nelson takes the command of the fleet off Cadiz.

Brilliant victory off Trafalgar gained by Nelson.

Death of Lord Nelson.

large ships. The action, however, was not decisive, and the British admiral was prevented by the foggy weather and the state of his ships from renewing it next day—a disappointment to the sanguine hopes of his country—for which he dearly, and, perhaps, unjustly, suffered, by receiving a reprimand from a court martial, for an error of judgment. This court took place on the 22d of July. On the 15th of September, Lord Nelson put to sea, and arriving off Cadiz, received the command of the fleet on that station from Admiral Collingwood. About the middle of October, having received certain information that he would be joined in a day or two by a reinforcement of seven sail of the line from England, he boldly detached Admiral Louis with six ships of the line upon a particular service, in so open a manner as to be seen by the enemy. This manœuvre deceived Admiral Villaneuve, who, believing that the British fleet was reduced to 21 sail of the line, while the combined French and Spanish fleet counted 33, resolved to retrieve his fallen fame, by encountering Nelson himself. He accordingly ventured out from Cadiz with a light westerly wind. Lord Nelson having received his expected reinforcement, immediately sailed in pursuit of him; and on the 21st of October, descried the combined fleet about seven miles to the eastward of Cape Trafalgar. The commander in chief immediately gave the signal for the fleet to bear up in two columns, as they formed in the order of sailing. Lord Nelson in the Victory, led the weather column; Admiral Collingwood, in the Royal Sovereign, led that of the lee. Villaneuve had formed his ships in one line; but as the mode of attack was unusual, so the structure of his line was new, forming a crescent, convexing to leeward. Nelson's last signal was, "England expects every man to do his duty." It was received with a shout throughout the fleet. About noon the dreadful contest began by the leading ships of the British columns breaking through the enemy's line, which was first effected by Admiral Collingwood. The succeeding ships breaking through in all parts astern of their leaders, engaged the enemy at the muzzles of their guns. At twenty minutes past twelve, the action became general. Lord Nelson ordered his ship, the Victory, to be run on board the Redoubtable, while his second, the Temeraire, run on board the next adjacent ship, and in a short time, the four contending vessels were closed in one mass. After a general and furious engagement, continued for several hours; about three P. M. Admiral Gravina, who carried the Spanish flag in the rear, bore away to Cadiz. Five more of the headmost of the enemy, under Admiral Dumanoir, tacked and stood to the southward. They were engaged, and the sternmost taken, and nineteen ships of the line remained in all to the British. Of these, two were first rates, and none were under 74 guns. At forty minutes past four, all firing ceased, and a complete victory was announced to Lord Nelson, who, having been wounded early in the action, survived just to hear the joyous tidings, and died, as he had lived, with heroic fortitude. It is fresh in every memory, how much the public mind required such a victory to console it, amidst the dismay and consternation produced by the misfortunes of Austria; yet it was, perhaps with no great exaggeration of Nelson's merits, said of the battle of Trafalgar, that it did not recompense his country for his loss. Two days after the engagement, ten ships of the enemy, the remnant of their fleet which had suffered least in the action, ventured out from Cadiz, in the hopes of attacking some of the British ships which were damaged and scattered by the tremendous state of the weather. But they were repulsed by Collingwood, and one of their line was added to the captures. It was necessary, however, to destroy several of the prizes; nine were wrecked; four were brought to Gibraltar; Dumanoir, who had escaped with four ships, at the close of the action, fell in with Sir Richard Strachan off Ferrol, and struck, after a hard contest.

After the capture of Tippoo Saib's capital, and the death of that potentate, the East India Company seemed for a time to be left without a rival in their eastern empire. Yet in that extensive territory of the Mahrattas, extending nearly a thousand miles, from Delhi to the river Tumbudhra, and from the Bay of Bengal to the Gulf of Cambay, nearly an equal breadth, comprehending a population of 40 millions of people, it might be naturally expected, that chieftains, of formidable power and consequence, should view, with jealousy, the approach of European conquerors. Among the Mahratta chiefs, the most powerful at the commencement of the present century, were Dowlut Rao Scindiah, and Jeswunt Rao Holkar. With the former of these potentates, war was commenced by the British in the beginning of 1803, and prosecuted with brilliant success. On the north-western frontier of Oude, general Lake successively defeated the army of Scindiah, and overwhelmed the forces of Mons. Perron, a French soldier of fortune, who commanded a corps of Europeans in the service of the Indian prince. In the Deccan, general Wellesley followed up a splendid career of victory. The result was to bring Scindiah, and his ally the Rajah of Berar, to a treaty, by which the Mahratta princes ceded a large territory to the company, and acknowledged the protection of the British government.

Scarcely had Scindiah been suppressed, when another enemy equally formidable arose, in the Mahratta chieftain Holkar, formerly the inveterate rival of Scindiah, but recently united with him by their common enmity to the British. General Frazer, on the 13th of Nov. 1804, attacked and defeated his infantry and artillery, near one of his fortresses called Deeg, and obtained a most important victory. Lord Lake, in the November of the same year, surprized the whole force of his cavalry, under the personal command of Holkar, near the city of Ferrackabad, with equal success, and the Indian prince escaped with difficulty from the disastrous field. After these successes, Lord Wellesley returned to Britain. His government, though distinguished by many victories, had been expensive and ambitious. When his successor in the government, Lord Cornwallis, arrived at Calcutta, he found the finances of the country in a most deplorable state, and, without some great reduction of expenditure, quite unable to meet the contingencies of war. The native princes, though defeated, were still able to harass and employ our force. From the extent of their territory, from the numbers of their cavalry, and the hardy and wandering habits of their irregular troops, they were able to survive defeats, and rally after dispersion. Holkar was still in arms, and Scindiah, with whom a peace had been made, had imprisoned the company's resident, and prepared anew for hostilities. The death of Lord Cornwallis unhappily deprived our eastern empire of his services, before he had lived to witness the effects of the pacific system which he went out to substitute, in the room of that of his predecessor. But his efforts were not in vain; and his system was happily pursued by others when he was no more. Peace was concluded with both Holkar and Scindiah before the end of 1805. The territories of the latter were abridged and limited on the north to the river Chumbul, but a pecuniary compensation was settled upon his family.

Holkar renounced some of his possessions to the north of the Boundee hills, and in the possession of Bundelcund, but for these he received the indemnity of a Jaghire, to be settled on his daughter, while the company pledged themselves to leave him in quiet possession of his territories to the south of the Chumbul, and to restore his conquests in the Deccan.

The single reputation of Mr Pitt, which had erected a ministry independent of three powerful parties in parliament, (the friends of Lord Grenville, Mr Fox, and Mr Addington,) was not found sufficient to support it. When it was asked by what tokens of superior genius the war had been conducted since Mr Addington's resignation, it was not easy to point them out. A new coalition had been roused against France, but though long in prospect, it had been supported by no adequate efforts on the continent. We had assisted Austria by no diversion in the north of Europe, and troops had been landed at Naples after the fate of the campaign had been decided. Instead of co-operating with the allies in Europe to our utmost power, an expedition had been fitted out to acquire a colony at the other extremity of the globe. The colleagues of Mr Pitt, excepting Lord Melville, had still less reputation than ability. The impeachment of that statesman being followed by his removal from office, left Mr Pitt without an associate of acknowledged talents. Previous to that event, the minister, conscious of the weakness of his cabinet, had invited and received Mr Addington, now created Lord Sidmouth, to participate in his councils; but the vote of Lord Sidmouth in favouring the impeachment of Lord Melville, separated that statesman once more from his councils.

Amidst the gloom of his political prospects, the health of the minister rapidly declined towards the conclusion of the year. After an illness of some months, this extraordinary man, who, solely by the weight of his talents, had continued to direct the councils of his country, expired on the 22d of January 1806; and his death was a virtual dissolution of his ministry. See PITT.

A feeble attempt was indeed made to continue a ministry on the system of excluding from office the statesman who possessed the greatest share of public estimation, but it did not succeed. Lord Hawkesbury declined the succession to Mr Pitt's situation; and, after some discussions with the court, Mr Fox and Lord Grenville obtained the chief terms which they sought, and came with their respective friends into office. These discussions were understood to relate to the share of authority which his Royal Highness the Duke of York was to possess over the army. Lord Sidmouth acceded to the new ministry, and, with several of his friends, also came into power. †

New measures of defence.

One of the first objects of the attention of the new ministers, was the alteration of the system of military defence organized by their immediate predecessors. By the defence bill enacted under Mr Pitt, 40,000 men had been raised for the army of reserve; but of those, there were only two thousand that were drawn who served in person. Thirty-eight thousand were thus raised by private individuals. The operation of the ballot was not only partial and unjust, as it fell not upon the state, but on private individuals; but in consequence of the competition of so many unpractised recruiting officers, the price of substitutes rose to such a height as to impede the recruiting for the regular service, and the frequency of desertions was alarmingly increased. In the new plan of defence, it was proposed to substitute regular enlisting for balloting, and to hold out additional motives for men to embrace the military life, by improving the condition of the soldier, and changing the duration of his service from a lifetime to a limited period. In their financial schemes, the new ministers wisely adhered to a system on which their predecessors had for some time acted, of rather pressing on the present generation than leaving loads to posterity. They raised the war taxes from fourteen to nineteen millions. They increased the income-tax to 10 per cent. on all incomes exceeding £50, with great allowances, however, to those under £100.

Regulations respecting the army.

State of inaudited accounts.

Whatever popularity the new ministers might lose by this heavy tax, they certainly redeemed it by the laudable attention which they shewed to deliver the public from the enormous abuse of inaudited public accounts. These accounts, when they came into office, amounted to upwards of five hundred millions. Not a single account in the army office had been audited since 1782. The store accounts had been suffered to lie over since the same period. The navy accounts were greatly in arrear. When Mr Pitt began his long administration, he had found a similar accumulation of inaudited accounts, and had established a new board of auditors. But fresh accumulations had arisen from many obvious imperfections in his first plan of the board of auditors. Nor had the same minister's later bill in 1805 for increasing the number of auditors, provided effectually for the regular execution of their duty.

It was the object of the present plan to secure that the public accounts of every year should be regularly audited in the course of every ensuing year, so that no fresh accumulation should occur. At the same time, the wholesome principle of the great reforming revenue bills, viz. that of Mr Burke for regulating the office of the paymaster of the forces, and Mr Dundas's bill for regulating the office of the treasurer of the navy, was applied to the excise office, the post office, and the custom-house.

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† The new cabinet was thus composed: Lord Grenville, First Lord of the Treasury; Earl Spencer, Mr Fox, and Mr Windham, Secretaries of State for the Home, Foreign, and War Departments; Lord Henry Petty, Chancellor of the Exchequer; Lord Howick, First Lord of the Admiralty; Earl Fitz-William, Lord President of the Council; Viscount Sidmouth, Lord Privy Seal; Earl of Moira, Master of the Ordnance; Lord Erskine, Lord High Chancellor; Lord Ellenborough, Lord Chief Justice; the Duke of Bedford, Lord Lieutenant of Ireland; and Mr George Ponsonby was made Keeper of the Irish Seals.

It has been already noticed, that the whole of Mr Pitt's influence, while yet a minister, could not avert from his late associate in office, Lord Melville, a vote of the House of Commons, that there were grounds for criminal impeachment against his Lordship in the management of public money.

The trial of that nobleman commenced in Westminster-hall on the 29th of April. Ten days were employed by the managers in bringing forward and examining their evidence, and in the speeches of Mr Whitbread, who opened the case, and of the Solicitor General, who summed up the evidence. The evidence and arguments of the counsel on both sides, closed on the 17th of May, and sentence of not guilty was pronounced by a majority of the peers on the 12th of June. †

Expedition against the Cape of Good Hope,

An expedition against the Cape of Good Hope had sailed from England in the autumn of 1805, at the moment when hostilities were breaking out on the Continent. The force destined for the conquest of the Cape, consisted of about 5000 land troops, under Sir David Baird, and a proportional naval force, commanded by Sir Home Popham. They reached their destination on the 4th of January 1806. Sir David Baird commenced his march to Cape Town on the 8th. On the same day, when the army had reached the summit of the Blue Mountains, they perceived the enemy to the number of 5000, drawn up on the plain to receive them. By the gallantry of the Highland brigade, under General Ferguson, who commenced the attack, they were routed, after a short resistance, and General Jansens, the commander in chief, who retired with a remaining body to a pass in the interior of the country, soon after accepted of honourable terms: he was allowed with his troops to return to Holland, on condition of the colony and its dependencies surrendering.

which surrenders.

Plans respecting the invasion of Spanish America.

Sir Home Popham, the naval officer, whose cooperation had so materially aided this conquest, had held several consultations with the late ministers (Mr Pitt and Lord Melville,) about the project of invading Spanish America; but he had been afterwards distinctly informed, that no such measure should be adopted at present, from deference to Russia. Flushed, however, with his conquest at the Cape, and influenced by the hope of public as well as private gain, he embraced the bold and unauthorized resolution of attempting some exploit in the Rio Plata; and persuaded Sir David Baird to acquiesce in his plans, so far as to furnish him with a small portion of his troops. In the month of June, he entered the Rio Plata with a force under General Beresford, not exceeding 1600 men. On the 24th of June, having disembarked about 12 miles from the city of Buenos Ayres, the British forces captured the place with great facility, the enemy flying before them wherever they appeared, and abandoning their artillery. While our little army was thus employed in the conquest of Buenos Ayres, the line of battle ships made demonstrations before Monte Video and Maldonado to alarm the garrisons. At those two places all the regular troops had been detained; while the city, defended by a raw militia under the conduct of a timid and unskilful viceroy, had yielded by surprize to its assailants. An important conquest was thus achieved, and a booty to the amount of several millions of dollars was acquired. But when the Spaniards beheld with shame the small number of their conquerors, a project was soon matured for rising upon the British troops. Liniers, a colonel in the French service, landed above Buenos Ayres with above 1000 men, armed levies from the country attacked the town, and though repulsed, persevered in returning to the charge. At last, after a hard battle with the insurgents in the streets of the town, the English were overpowered, and obliged to surrender as prisoners. Sir Home Popham, with reinforcements from the Cape, made an attempt to recover Monte Video, but was obliged to desist. A body of troops, under Colonel Vassal, were more successful in securing the post of Maldonado, where they remained to receive fresh succours from home, and to prepare for another campaign, still more disastrous than the last.

Prussia, after much hesitating and negotiation, had been at last impelled, by the violation of her territory, to draw out her troops against France; when the news of the battle of Austerlitz and of the armistice, again terrified her into feeble councils. The result of these was, that her minister Hauguritz, signed a treaty at Paris, by which Prussia became the ally of France; the guarantee of her conquests in Germany, and her associate in the spoils of the vanquished coalition. This infamous affair was speedily made known to Europe. It was declared in a proclamation, that his Prussian majesty had formally annexed to his dominions the Electorate of Hanover, belonging to *the Emperor Napoleon by right of conquest*, and transferred to Prussia in return for three of her provinces. The ports of the German ocean were also declared to be shut against British trade and shipping. The conduct of Prussia in thus humbling herself to a vassalage of hostility, left Britain no choice but retaliation against her commerce and navigation, and her flag, for a time, disappeared from the Baltic.

The peace of Presburg, which the Emperor of France and Germany signed after the battle of Austerlitz, and the treaty concluded with Prussia, left

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† The charges against Lord Melville, though multiplied by the managers of the impeachment, were in fact only three in number. The first was, that before the 10th of January 1786, he had, contrary to the obligation imposed on him by the warrant appointing him treasurer of the navy, applied to his private use and profit, several sums of public money entrusted to him in that capacity. The second was, that after the passing of the act of parliament in 1785, for the better regulating the office of treasurer of the navy, he had, in breach and violation of that act, permitted Mr Trotter, his paymaster, illegally to take from the Bank of England, for other than immediate application to navy purposes, large sums of money from the monies issued to the Bank on account of the treasurer of the navy, and place the same in the hands of his private banker, in his own name, and subject to his disposition and controul. The third charge was, that he had fraudulently and corruptly permitted Mr Trotter to apply the money so abstracted illegally from the Bank of England, to purposes of private use and emolument, and had himself derived profit from them.

Bonaparte at liberty to take vengeance on the court of Naples. He accordingly issued a proclamation, from his head quarters at Vienna, declaring that the Neapolitan dynasty had ceased to reign. Fourteen thousand Russians and ten thousand English had landed in that kingdom, with a view to produce a diversion in favour of the Austrians in Lombardy; and the king of the two Sicilies had evinced a determination to support their operations. But the catastrophe of the allies in Germany, proved too late the futility of the enterprize. Scarcely had the dreadful threat of Bonaparte reached his Sicilian majesty, when a courier arrived from the Emperor Alexander, recalling the Russians to Corfu. The retreat of the English followed as a necessary consequence. Sir James Craig, their commander, wisely determined to retreat to Sicily, without waiting for the arrival of the enemy; and the king and queen of Naples, thus abandoned to their fate, sought refuge, as before, at Palermo. After the evacuation of Naples, Sir James Craig established his head quarters at Messina, as the station best adapted for protecting Sicily from invasion; while Sir Sidney Smith, with a squadron of five ships of the line, and a force of frigates and gun-boats, protected it by sea; insulted the territory of the new sovereign of Naples, (Joseph Bonaparte,) and took possession of the island of Capri. In April 1806, the command of the troops in Sicily devolved on General Stuart, who, for his services, was rewarded with the red ribband, from the bad health of Sir James Craig, who returned to England. It was of the utmost consequence that Sicily should be preserved from the power of France; and it was, therefore, with difficulty that General Stuart agreed to diminish his small force, by co-operating with the schemes of the court of Palermo, for exciting insurrections on the coast of Calabria; but prompted, at last, by accounts of the favourable disposition of the Calabrians, and hoping to destroy the resources of the enemy for invading Sicily, he consented to land a part of his army on the continent, and make trial of the loyalty of the people to their former sovereign.

Four thousand eight hundred effective men were landed on the morning of the 1st of July, in the Gulf of St Euphemia, near the northern frontiers of lower Calabria. The British commander's proclamation, inviting the inhabitants to his standard, attracted so few, that he was hesitating whether to re-imbark his troops, when he learned that General Regnier, with a French army nearly equal to his own, was encamped at Maida, about 10 miles distant. Understanding also that the enemy expected reinforcements, he determined to anticipate their arrival, and advanced, next morning, to attack Regnier. The two armies were separated by a plain, from four to six miles in breadth, extending from sea to sea, and bounded on the north and south by chains of mountains. Regnier occupied a strong position, which he abandoned in the confidence of superior numbers, and in contempt of the British troops, and advanced with seven thousand men to charge them on the plain. The British, only four thousand eight hundred strong, were surprized, but not dismayed at the numbers of their antagonists, and advanced with alacrity. Regnier had taught his men to believe, that they would fly on the first charge—a presumption which was quickly changed into astonishment, when they saw the ranks of our countrymen advancing rapidly to meet their charge. The action began on the right of the British, and after some firing, both sides prepared for the bayonet.

As the French came on, their line grew uneven, one part of it halting at some distance, another venturing nearly to cross bayonets with our men; but, on the point of contact, they turned and fled. They were overtaken with immense slaughter, and their left wing totally routed. On the right, the enemy made an effort to retrieve the day; but were also repulsed by the steadiness of the English left, and their cavalry being thrown into disorder, in an attempt to turn the English flank, by a fire from the 20th regiment, which landed during the action, and came up at this critical juncture, they abandoned the field with precipitation, leaving in prisoners, wounded, and killed, not less than 4000 men.

Brilliant as the victory of Maida was, it contributed only to the glory of the national arms, and in no way to the recovery of Calabria. The capture of Gaeta by the French, more than counterbalanced its effects on the affairs of Italy. The mass of Calabria, who had risen, and were still disposed to rise upon the troops of Joseph Bonaparte, might protract a desultory warfare, till Massena approached to overwhelm them; but their insurrections were so evidently inadequate to offer a permanent resistance to the conqueror, that the British commander wisely returned to Sicily; and the subsequent solicitations of the court of Palermo to succour them with British forces, were refused, as inconsistent with the superior object of defending Sicily. In their zeal for insurrectionary movements, the deposed king and queen of Naples were little disposed to consider the calamities which they occasioned. But it was abhorrent to the humane breasts of their British allies, that bloodshed and misery should be continued for no better purpose than to gratify a fallen court with the occasional punishment of its enemies, inflicted by outlaws and banditti; for, by such characters, the Neapolitan mass were, in general, conducted.

Proceedings of the British fleets.

Such an action as that of Trafalgar was not to be yearly expected; but the British navy maintained its accustomed superiority in 1806. In the West Indies, Sir Thomas Duckworth captured three French ships of the line, and drove ashore and burnt two others, a portion of the fleet which had escaped from Brest. The French admiral Linois, who had long infested our commerce in the East, was intercepted on his return by Sir John Borlase Warren, and brought to England, with an eighty gun ship, and a forty gun frigate.

Affairs of Prussia.

Prussia found no safety in humiliation. She discovered that Bonaparte, who had compelled her to hostilities with Sweden, had engaged to Russia, to prevent her from depriving the king of Sweden of his German territories; and after guaranteeing to her the possession of Hanover, that she was negotiating with England on the basis of restoring that electorate. After selling her honour, she had been defrauded of the price. Indignation at the treachery and impatience of the insolence of Bonaparte, at last decided her councils to hazard the die of war. Information was no sooner communicated to the Eng-

Battle of Averstadt.

Negotiation for peace.

Death of Mr Fox.

lish ministry, of the desire of the cabinet of Berlin to return to a state of amity with Britain, than Lord Morpeth was dispatched to the head quarters of the Prussian army, there to negotiate for peace. These he reached at Weimar, on the 12th of October. But the same impolicy and insincerity, which had before disgraced the councils of Prussia, were still visible in her conduct. She had entered on the awful crisis of a rupture with France, without informing England of her resolution. She now hesitated and shifted at the prospect of negotiating for peace with us, knowing, that the restoration of Hanover would be required. If she lost the impending battle, all would be lost. If she gained it, she hoped to retain Hanover independent of Britain. Her minister Luechesini, therefore, unguardedly answered Lord Morpeth, when he asked if his court was ready to enter on immediate negotiation, that it would depend on the issue of the battle which had just been fought. The battle of Averstadt had been already fought, but the result was not yet known at the place where this was spoken. It is needless to add, that the battle of Averstadt put it beyond the power of Frederick to negotiate farther with Great Britain. Before the short and awful struggle had commenced, which decided the existence of Prussia, an accidental circumstance,* which brought on a personal correspondence between the ministers of France and England, drew forth the only serious proposals for peace, which had been made since the renovation of the war. It is of small consequence to detail the particulars of a treaty which ended so unfortunately. As soon as it was obvious, that the abandonment of Russia was to be the price of the favourable terms, so ostentatiously at first promised to Britain, the determination of our court not to listen to any such projects, prevented a precise detail of the concessions which France was willing to make for the attainment of her object. It is, however, worthy of remark, that no offer of Sicily, the great object for which Mr Fox had contended, was ever made, even in the supposition of a separate peace. An attention not only to the interests, but to the wishes of Russia; a firm determination to listen to no measure, that could give her umbrage or suspicion; and a strong desire to preserve Sicily, almost a resolution not to abandon it,—were the prominent features of the conduct of Britain during this negotiation. Mr Fox, whose health had been for some time declining, did not live to know, though he strongly anticipated, the issue of the negotiation. On the 13th of September, that illustrious statesman breathed his last. See Fox.

Bonaparte lavished abuse on his survivors in the British cabinet, for departing from the sincere and pacific views with which Mr Fox had commenced the treaty. But their popularity was in no danger of being hurt by that imputation; for, independent of the charge being wholly false, the British public were rather disposed to be jealous of pacific views in their rulers, than to doubt their sincerity. Since the commencement of the present war, the universal cry has been the danger of a peace. On the present occasion, the nation were less disposed to shudder at the prospect of protracted war, than at the restrospect of the perils which they had escaped of an insidious treaty. The death of Mr Fox was not immediately fatal to his ministry. At the recommendation of Lord Grenville, his majesty was pleased to appoint Lord Howick to the foreign department, Lord Sidmouth to the presidency of the council, and Lord Holland, the only new member who was brought into the administration, to be lord privy seal. A dissolution of parliament took place, and the elections were, in general, such as to furnish a parliament, which promised to be more favourable than the last to the present administration.

After the fatal and dreadful battle of Averstadt, Bonaparte pursued his career to Berlin, with no resistance from the broken remains of the Prussian army, except from the small and single band of the gallant Blucher, who at last surrendered at Lubeck, after the city had been taken by storm. At Berlin, the conqueror, whilst he was erecting new kingdoms and dukedoms, published his famous decree against the commerce of Britain, by which he declared the whole island in a state of blockade. He set out from thence to pursue the king of Prussia across the Oder, whilst the garrisons of that unfortunate monarch, either from panic or treachery, seemed to be emulous which should be the first to surrender.†

One of the capital errors of Prussia had been to rush into the contest with France, without waiting for the co-operation of Russia. On the first intimation of her danger, the Russian troops advanced through Poland, and, as if they had hoped to retrieve one fault by committing another, exactly imitated the example of their defeated ally, in precipitately meeting the French. General Beningsen, at the head of their first division, reached Warsaw before the French. A check, which he received on the Vistula, taught him the necessity of retreating behind the Narew, where he was joined by the divisions of Buxhoveden and Kamenskoy, the latter of whom was appointed to the chief command of Alexander's forces. From the Narew, the Russian columns made a second retreat, broken and discomfited, and were saved only by the badness of the roads, which impeded the progress of the French artillery. At that critical moment, the Russian generalissimo Kamenskoy left his army, and retired to Ostrolenka. It was given out that his understanding was deranged. A very different account of his conduct is not discredited by the issue of the campaign. He was old in military experience, and is said to have been the only one of the Russian generals, who saw the danger of their situation, and to have left the army in disgust and despair, when he found his authority insufficient to curb the impetuosity of the younger generals, who were determined on risking another engagement. Benningsen and Buxhoveden accordingly fought at Pultusk, and at Golymyn. The latter claimed a victory, his antagonists did the same. Of the murderous conflicts on these new scenes of warfare, it is not easy to separate the real from the falsified accounts on both sides; but the indisputable trophies of 80 pieces of cannon taken from the Russians, which their enemies brought back to Warsaw, left room to suppose, that the severest loss was not upon the side of the French. After the battle of Pultusk, the French retired into winter quarters on the Vistula; the Russians fell back to Ostrolenka, on the Niemen. The command of the army after the battle of Pultusk, was given to Benningsen, who joined with Buxhoveden, after the undeniable defeat of that general at Golymyn.

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* The circumstance of a Frenchman, (who afterwards proved to be disordered in his intellects,) having communicated to Mr Fox his intention of going to France to assassinate Bonaparte, occasioned a letter from Mr Fox to the French government, describing the individual. He was arrested at Hamburgh.

† With some exceptions, Great Glogaw and Breslaw made a creditable resistance.

The plan of Benningsen was to turn the left flank of the French army, and his eye was therefore kept upon the Vistula; while Bonaparte, perceiving that his enemy meant to give him no rest in his winter quarters, directed his view to the Pregel and the Niemen, and determined to anticipate the attack. At Mohringhen, a general action was brought on, where, as usual, both sides claimed the victory. In this, as well as in the tremendous battle of Eylau, which succeeded to it, the claims of the Russians, to the honour of checking Bonaparte, are not without appearances of justice. If the French emperor buried their dead at Eylau, took a number of their artillery, and remained seven days on the field after the latter battle, he failed, through the obstinacy of their resistance, in fulfilling his promise of being at Koningsberg. Inspired by the unexpected circumstance of even a doubtful contest with Bonaparte, the public sanguine expectation made no distinction between the efforts which might keep him at bay for a short time, and those which should destroy him. But if Russia possessed, at any moment, either generalship or physical force to combat France, it can only be said, that they both declined instantaneously after the battle of Eylau. It seemed as if the understanding of her leaders, as much as the numerical power of her armies, had been wasted in the agony of her struggle. A number of actions in the spring campaign of 1807, in the intermediate time between those of Eylau and Friedland, displayed the superior tactics of the French, and in spite of all her reinforcements, the decreasing strength of her army. Yet, after all the successes of Jerome Bonaparte in Silesia, and even after 40,000 French troops were added to the main army of Bonaparte, by the capture of Dantzic, the Russians persisted in the plan of coming to a general and decisive action. The battle of Friedland was indeed decisive.

With a wanton and ambitious confidence in her own strength, Russia had so timed her attack upon Turkey, as to have 30,000 of her troops invading Wallachia and Moldavia during the crisis of her struggle with France. A revolution in Constantinople, which placed Mustapha IV. on the throne of the empire, took place during the approach of the Russian armies. It was ascribed, by the French, to the influence of English gold; but it was, in truth, unconnected with politics, and wholly prompted by the resentment of the Janissaries, at some recent innovations which had been made by the government, supposed to be favourable to the Christians. The new Turkish sovereign fell, like his predecessor, into the French influence; a natural consequence of the hostility of Russia, although the Russians declared, that they only wished to rescue the Ottoman empire from the grasp of Bonaparte. Whilst the influence of Sebastiani, the French resident, was sensibly gaining ground, our minister, Mr Arbuthnot, wrote home to our government the state of affairs, and, at his instance, as well as by the advice of the Russian minister at Petersburgh, a British fleet was sent out under the command of Sir John Duckworth,* to give weight to the joint negotiation of England and Russia with the Porte, for concluding a peace. Our naval force cast anchor at the isle of Tenedos about the middle of February, where it was joined by a British frigate from the harbour of Constantinople, on board of which Mr Arbuthnot, in the fear of personal violence, made his escape. On the 19th, our fleet passed the Dardanelles, and, at the outer castle, as a mark of forbearance, made no return to the fire of the Turks. But in passing the narrow strait between Sestos and Abydos, they were obliged to answer a very heavy cannonade, which was opened from the inner castles. Within these, a small Turkish squadron was destroyed by Sir Sydney Smith, and a formidable battery was spiked by the marines. After this a fruitless negotiation commenced, which lasted for several days, during which time the Turks had time to construct most formidable batteries along the shore. In this work, the population of the Turkish capital and its neighbourhood, inspired by unbounded enthusiasm, were employed from the highest to the lowest orders, till they had mounted batteries and breast-works with 600 pieces of artillery. They were directed by French engineers, whom the sultan had obtained from Dalmatia at the breaking out of hostilities with Russia. In the mean time, the British admiral and ambassador offered to withdraw beyond the Dardanelles, even should the proffered amity of England and Russia be declined, if the Porte would deliver its fleet and naval stores. In the event of a refusal, they threatened Constantinople with bombardment. But during the whole negotiation, if we may credit Sir John Duckworth, it was not in the power of the British squadron to put their threat in execution; for although they had cast anchor within a few miles of the city, the state of the weather would not have permitted them to maintain a station so near as to bombard it. Had the Turks been allowed another week to complete their batteries, the very return of the British squadron would have been doubtful. From this peril the British admiral was glad to make his escape, and to forego the threatened assault of a city, defended by 200,000 enemies, of which the destruction, had it been possible, could have been an unprofitable act of vengeance. On the first of March, he weighed anchor to repass the Dardanelles, a return, which was not effected without peril and loss. The Turkish mortars, in short, discharged bullets and blocks of marble of incredible size upon our ships. One of these, weighing 800 pounds, cut the main mast of the Windsor Castle man of war in two, and the ship was

Operation
of Sir Joh
Duckworth's
squadron,
at Constantinopl

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* It consisted of 7 ships of the line, two of them three-deckers, besides frigates and gun-boats.

with difficulty saved. In this unhappy enterprize, we lost 250 men.

The failure of this expedition was not compensated by the next attempt that was made upon our Turkish enemies.

Attempt upon Egypt.

On the 6th of March, a force of 5000 men was dispatched, by General Fox, from Messina, under the command of General M'Kenzie, to capture Alexandria; a service which was effected with little difficulty or bloodshed on the side of the British; but, unfortunately, from a groundless fear of scarcity in the captured place, an attempt to take Rosetta also was made, and from the failure of the expected aid of the Mamelukes, as well as from the orders of the commander in chief to the storming party being intercepted, a large force of the British were surrounded and cut off. Nearly 1000 men were killed, wounded, or lost in the affair.

Failure of the attack upon Rosetta.

Before this attack on Alexandria was known at home, a new ministry had succeeded, and the successors of those who had planned the expedition did not choose to support it by reinforcements from Sicily or Malta. This disposition, we may presume, was known to the commanding officers at Alexandria, who being now threatened with expulsion by the disaffection of the inhabitants, and with fresh attacks of the enemy, who were pouring down troops from Cairo, abandoned the idea of defending the place, and consented to evacuate Egypt, on condition of the Turks restoring the prisoners who had been taken at Rosetta. Having obtained those terms, the British troops returned to Sicily.

The British evacuate Egypt.

Proceedings at Buenos Ayres.

The event of Sir Home Popham's unauthorized expedition to Buenos Ayres, had left the remnant of the British forces in that quarter, at the end of 1806, in possession of only the single post of Maldonado. Unlike the administration which succeeded them, in their conduct respecting Alexandria, the ministry of Lord Grenville, though they disapproved of the expedition, did not choose that the national glory should be sullied, by being driven from a conquest which had once been made.

When intelligence of the recapture of Buenos Ayres reached ministers, they dispatched counter-orders to General Crawford, who had been sent on an expedition to Chili, to desist from that enterprize, and to repair to the Rio de la Plata. The whole British force in the Plata now amounted to 9500 men.† Unhappily ministers superadded to their orders, that General Whitelocke should sail to take the *chief command*. At the head of nearly 8000 of these troops, some of the finest brigades in the British service, that ill-starred commander proceeded to attack the city of Buenos Ayres.

Though provided with artillery, he sent on the troops, with unloaded arms, and iron crows, to force their way into the town, and burst open the houses. The result of a plan (if it deserved such a name) so desperately rash, was to give an undisciplined enemy, fighting from behind walls and houses, the greatest advantage that could be given them over regular troops. Some of our troops, indeed, forced their way into the town, by successful gallantry, but a great proportion were overpowered by irresistible numbers. Terrified by the loss of three thousand men, who were sacrificed in the rash attempt, the general negotiated with the enemy, for the restoration of the prisoners; and having agreed to withdraw his army from the river Plata, returned to England to await the just indignation of his countrymen. He was condemned, by a lenient sentence, to be dismissed from his majesty's service.

On the 1st of January 1807, the island of Curaçoa surrendered to a small squadron of frigates, under the command of Captain Brisbane; and the inhabitants of its chief town, Amsterdam, to the number of 30,000, swore allegiance to the British government.

The termination of Lord Grenville's short administration has been already alluded to. It was announced before the first adjournment of the new parliament, on the elections to which they had built their firmest hopes. Public opinion will, possibly, be long divided on the merits of the financial scheme, announced by Lord Henry Petty, during the last session of his chancellorship of the exchequer—a scheme, by which that minister promised, that upon the data which he laid down, it would not be necessary to increase the public burthens beyond a trifling amount, during the ensuing period of 20 years. It was, however, necessary from this flattering conclusion to suppose, that the national expenditure should not exceed, during that period, the sum of 38 millions yearly; a supposition so improbable, as to dispel the fairest hopes attached to his system.‡

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† Before the news of the recapture of Buenos Ayres had reached Lord Grenville's ministry, they had dispatched a considerable reinforcement of troops, who, under the gallant conduct of Sir Samuel Achmuty, had taken Monte Video by storm.

‡ The plan of Lord Henry Petty was adapted to meet a scale of expenditure nearly equal to that of the year 1806; and it assumed, that, during the war, the annual produce of the permanent and temporary revenues, would continue equal to the produce of the same year 1806. It was understood, that any further or unforeseen change, or any deficiency of revenue, should be separately and specifically provided for. Keeping these premises in view, it was proposed that the war loans, for the years 1807, 1808, and 1809, should be twelve millions annually; for the year 1810, 14 millions; and for each of the ten following years, 16 millions annually. These several loans, amounting for the 14 years to 210 millions, were to be made a charge on the war-taxes, which were estimated to produce 10 millions annually. The charge, thus thrown on the war-taxes, was meant to be at the rate of 10 per cent. on each loan. Every such loan would, therefore, pledge so much of the war taxes, as would be sufficient to meet this loan: That is, a loan of 12 millions would pledge L.1,200,000 of the war taxes. And in each year, if the war should be continued, a further portion of the war taxes would, in the same manner, be pledged. Consequently, at the end of 14 years, if the war should last so long, 21 millions, the whole produce of the war taxes, would be pledged for the total of the loans, which at that time would have amounted to 210 millions. The 10 per cent. charge thus accompanying each loan, would be applied to pay the interest of the loan, and to form a sinking fund, which sinking fund would evidently be more than five per cent. on such of the several loans as should be obtained at a less rate of interest than five per cent.

A five per cent. sinking fund, accumulating at compound interest, will redeem any sum of capital debt in 14 years. Consequently the several portions of the war taxes proposed to be pledged for the several loans above mentioned, would have redeemed their respective loans, and be successively liberated in periods of 14 years, from the date of each such loan. The portions of war taxes thus liberated, might, if the war were prolonged, become applicable in a revolving series, and might be again s of Gren- ad- tra-

There are proofs of the merit of this short administration which appeal to moral feeling, and are infinitely less obscure than those depending on financial calculation. They lent a cordial, and happily a triumphant assistance, to the abolition of the slave-trade; they obtained a vote of the House of Commons against the granting of places or payments in reversion; thus taking from the crown the power of dilapidating its own resources, and from the people one source of the corruption of their leaders. They delivered from slavery (that is, from service for life,) the soldier, hitherto the only slave in a free country; and when they retired from office, *magnis ceciderunt ausis*. They were dismissed, because they would not promise to cease being the advocates for the religious toleration of millions of their fellow subjects. The intention of moving a bill for permitting Catholics and other dissenters to be eligible to any situation in the army and navy, had been announced by Lord Howick in the Commons, and had been submitted to his majesty by his ministers, and had met with his approbation. Some doubts, however, as to the extent of the measure, were entertained by some members of the cabinet, who at last objected to the bill in the strongest terms. His majesty was soon after apprised, that the concession to the Catholics was of greater extent than he had conceived it to be, and he conveyed to Lord Grenville his disapprobation of the bill. Ministers then endeavoured to modify the bill, so as to reconcile it to his majesty's wishes, without destroying its vital essence. Failing in this attempt, they determined to drop it altogether; but at the same time, to insert in the proceedings of the cabinet, a minute, reserving to Lord Grenville and Lord Howick, first, the liberty of delivering their opinions in favour of the Catholic question; secondly, that of submitting this question, or any subject connected with it, from time to time, according to circumstances, to his majesty's decision. Far from these terms being granted, ministers were called upon, not only to withdraw the latter reservation, but to substitute in its place a written obligation, pledging themselves never again to bring forward any thing connected with the Catholic question. These terms having been declined, his majesty informed them, that he must look out for other ministers. A new administration was immediately formed. The Duke of Portland was appointed first lord of the treasury; Mr Percival, chancellor of the exchequer; Lord Eldon, lord-chancellor; Lord Liverpool, secretary for the home department; Lord Castlereagh, for the war department; Mr Canning, minister for foreign affairs; Lord Mulgrave, first lord of the admiralty.

Change of ministry.

State of a fairs on th continent.

After the battle of Friedland, Sweden remained alone faithful to her alliance with Britain; Russia had even, before that event, given several symptoms of secession, particularly in the appointment of Count Romanzow as her minister for foreign affairs, a man notoriously hostile to the English interests. Denmark affected a neutrality, which, in reality, she was not only unable, but unwilling to maintain. The greatest fear of her cabinet was for her German territory. Thus the victories of Bonaparte brought the French near her: she had not courage to collect her troops in the face of that power; but in 1805, when the coalition was formed against France, she openly threw what little influence she then possessed, into the scale of that country, and collected an army, which, contemptible as it was, could only be meant to watch the motions of Prussia, while the French soldiers were fighting on the banks of the Danube. France, the tyrant of the continent, was her natural enemy; but her weakness had made her willing to bend so entirely to the views of that power, that she had become willing to suffer from Britain, an enemy created by the influence of France, deeper injuries than France had yet inflicted. In the spirit of submission to France, she had solicited our government to be excused from receiving our packet boats at the ports of Holstein or Sleswig, and this was brought

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pledged for new loans. It was, however, shewn, by the printed calculations, that whatever might be the operation of the continuance, the property tax would not be payable beyond the period for which it was granted, by the 46th George III. ch. 65, but would in every case be in force only during the war, and until the 6th of April, after the ratification of a definitive treaty of peace.

The charge for the interest and sinking fund of the proposed loans being taken from the annual produce of the war taxes, a deficiency equal to that charge would be created in the amount of the temporary revenue, applicable to the war expenditure. Supplementary loans would be required to make good that deficiency. Those supplementary loans would increase, in proportion to the increasing deficiency, if the war should be continued; but the whole amount of the loan in any one year, including that charged upon the war taxes, and the supplementary loan, would never, even in a period of 20 years from the present time, exceed L.500,000 in any year, beyond the amount to which the combined sinking fund of that year would have been raised; and, upon an average of those 20 years, would not exceed L.3,800,000. It was proposed that the supplementary loans should be formed on the established system of a sinking fund, of 1 per cent. on the nominal capital. The charge so created, was to be provided for, during the first three years, by the expiring annuities, and during that period the country would have the great benefit of an exemption from all additional burthens. From 1810, and for the six following years, a charge was to be provided for, amounting on the average of those seven years to not more than L. 293,000 annually; a sum in itself so small in comparison with the great additions which have necessarily been made to the taxes in each year for the last fourteen years, that it would scarcely be felt, and could not create any difficulty as to the means of providing for it.

Provision was thus made on the scale of actual expenditure for ten years of war, if it should be necessary, without any additional taxes, except to an inconsiderable amount. At the close of that period, taking the 3 per cents at 60, and reducing the whole of the public debts at that rate to a money capital, the combined amount of the public debts would be L. 387,360,000, and the combined amount of the several sinking funds L. 22,720,000; whereas, the then amount of the whole public debt, taken on the same scale of calculation, was L. 352,793,000, and the amount of the sinking fund no more than L. 8,353,000.

If the war should be continued beyond the ten years thus provided for, it was proposed to take, in aid of the public burthens, certain excesses to accrue from the present sinking fund. That fund, with the very large additions derived to it from this new plan, would amount, in 1817, to 24 millions sterling. But it was now proposed, in any case, to apply to the charge of new loans, a larger portion of the sinking fund than such as would always leave an amount of sinking fund equal to the interest, payable on such part of the present debt as should remain unreduced. Nor was it meant that this, or any other operation of finance, should ever prevent the redemption of a sum equal to the present debt, in as short a period as that in which it would have been redeemed, if this new plan had not been brought forward.

forward as a plan of amicable arrangement with us. Our government repelled the proposal, and the Danes forbore to press it, being yet unprepared to come to a rupture. But the bare proposal shewed a degradation of national independence, from which we had a right to conclude that the basest acquiescences to France would yet arise, when she should be obliged to break with us. Such was the situation of the north of Europe, when, even before the signing of the peace of Tilsit, it was known that Bonaparte was likely to accomplish, as the first fruits of his conquests, the formation of a maritime confederacy against Britain. The result was, a determination, on the part of the British government, to send a powerful military and naval force, amounting to 20,000 soldiers, and 27 sail of the line, to strike a blow upon Copenhagen.

Negotiation with Denmark.

The command of the military was given to Lord Cathcart; and Admiral Gambier commanded the fleet. To conduct the negotiation, his majesty's ministers selected Mr Jackson, who had for several years resided at the court of Berlin. Upon the ground of Bonaparte's design to shut the ports of Holstein against the British flag, and forcibly to employ the Danish navy against this country, Mr Jackson was instructed to repair to the residence of the Prince Royal of Denmark, and to call upon his royal highness for an unequivocal declaration of the intentions of Denmark, and for an infallible pledge of the execution of those intentions, if they were not hostile to Great Britain. This pledge was the delivery of the Danish fleet into the possession of the British admiral, under the most solemn stipulation, that it should be restored at the conclusion of the war between this country and France. Should this be refused, and should the British negotiator have in vain exhausted every argument and effort to obtain the prince royal's consent to it, as the foundation of a treaty of alliance and general co-operation between the two countries, he was directed to announce, that it would be enforced by the British armament assembled in the Sound. In presenting this alternative, every possible stipulation was to be advanced, by which the present and future interests of the crown of Denmark were to be fostered by the resources of the British empire. Permanent alliance; guarantee, and even aggrandisement, of their actual possessions; every thing was promised that the fleets, and armies, and the treasury of England could afford.

Mr Jackson sets out for Copenhagen.

Mr Jackson left England on the 1st of August, and arrived on the 6th at Kiel. In case impediments should be thrown in the way of his communication with the British mission at Copenhagen, or with the British commanders, a period was fixed, beyond which the latter was not to wait, to hear from Mr Jackson, but to suppose that a constraint had been put upon his person, and to proceed in the execution of their instructions. On the day after his arrival, Mr Jackson announced the purport of his instructions to Count Bernstorff, and applied for an audience of the Prince Royal. The Danish minister is said to have received the proposals with the warmest indignation. The prince remained calm and unaffected during a long interview with Mr Jackson, and rejected the proposals with a dignified but determined declaration, that Denmark would adhere to the neutrality she had hitherto observed. Next day Mr Jackson was informed, that the prince had set off for Copenhagen, but that any proposals which he might make in the name of the British court, should be forwarded to his royal highness. The British minister chose rather to follow the prince to his capital, and arrived there on the 12th of August. In the mean time, from the prompt movements of the British squadron, no progress had been made in assembling an army in Zealand. A division of our fleet, under the immediate direction of Commodore Keats, had been detached to the Great Belt, with instructions to allow no military force to pass over from the continent. That officer had led his line of battle ships through an intricate and ill-known navigation, without the smallest loss, and stationed his vessels within telegraphic distance of each other. All connection was thus intercepted between the island of Zealand and the adjacent isle of Funen, and the mainland of Holstein, Sleswig, and Jutland. A levy had been made in Copenhagen from amongst the populace; but without the walls of that city and of Elsineur, there was not a battalion of regular troops. On reaching the Danish capital, Mr Jackson was informed at the first interview with the minister, that the prince had returned to Sleswig. This conduct was thought to shew a studied disposition to avoid negotiation, and the acknowledgment of the Danish minister, that he had no authority in the prince royal's absence to conclude any arrangement in the least compatible with Mr Jackson's instructions, determined the British envoy to take his leave. He repaired that same evening on board the advanced frigate of the British squadron, now at anchor within a few miles of Copenhagen. Next morning the British commanders were informed, that all hope of accommodation was at an end.

The army accordingly landed without opposition at the village of Vedbeck, on the morning of the 16th of August, and, after some ineffectual attempts of the enemy to annoy its left wing by the fire of their gun-boats, and to impede its progress by sallies, which were always repulsed with loss, it closely invested the town on the land side. The fleet coming to a nearer anchorage, formed an impenetrable blockade by sea. On the evening of the 2d of September, the land-troops, and the bomb and mortar vessels, opened a tremendous fire upon the town, with such effect, that a general conflagration soon was visible. The fire was returned but feebly from the ramparts of the town, and from the citadel and crown batteries. On the night of the third, the British fire was considerably slackened, either from apprehension that the ammunition would not suffice for the prosecution of the siege, or, what is more probable and charitable to believe, from hopes being entertained that the impression already made would produce proposals for capitulation. It was probably because the Danes adopted the first of these suppositions, that the second was not realized; the besieged conceived some hope from the relaxation of our fire, which, however, was resumed with so much vigour and effect, that on the night of the 4th, (September), a trumpeter appeared at the British outposts, with a letter from the commandant of the town, proposing a truce for twenty-four hours, to negotiate a capitulation. The capitulation was not signed till three days after, when the British army took possession of the citadel, dock-yards, and batteries, dependent upon them. The British admiral immediately began rigging and fitting out the ships that filled the spacious basons, and were there laid up in ordinary. These, at the expiration of the term limited by the capitulation, were, together with the stores, timber, and every other article of naval equipment found in the arsenals, conveyed to England, where, with the exception of one ship of the line, that was stranded or destroyed on the island of Huen, they all arrived safely in the end of October.

The natural humanity of the British public, excited by the horrible details of this siege, gave a popular aid to the outcry of the opponents of government at this proceeding. Ministers, too, in their own defence, were anxious to impress the public with a belief that specific information of the intentions of Denmark to throw herself into the scale of France, or, more properly speaking, to submit to her, had been received from their foreign agents. It was even pretended, that Denmark had been forced to be a secret party to the treaty of Tilsit, although it was afterwards proved that the date of our resolution against Copenhagen had been long anterior to any communications that could be made respecting the treaty of Tilsit. The most tenable grounds of defence which ministers exhibited, were, first, the general probability of Denmark being unable or unwilling to make a last stand against France; and, secondly, the express overtures which had been made to the Prince Regent of Portugal, and which he had communicated to the British ministry. In these, the adherence of Denmark to the French interests was announced, both as the means and the motive for obtaining that of Portugal. It has been stated with confidence, that the Danish minister himself admitted the impossibility of defending Holstein, Sleswig, and Jutland, from French invasion. The only doubt that remains, is, what the Danish court, driven to the solitary possession of Zealand, would have done? Whether they would have stood, with passive heroism, faithful to alliance with us, as their defenders, or purchased their political, though still dependent existence, by submission to the power who could still give them much, and *take* every thing except Zealand and their fleet? We think the weight of probability lies heavily against such an hypothesis.

But the system on which the Danish war was commenced, if justifiable, was not improved to the extent of which it was capable; and the abandonment of the island of Zealand, left the acquisition of the object which would have best justified the expedition, to the mercy of a French army, as soon as the Danes should have a fleet worth seizing.

The treaty of Tilsit was hardly concluded, when Bonaparte turned his eyes towards the west of Europe, and resolved on the subjugation of Portugal and Spain. He demanded of the court of Lisbon, to shut up the ports of Portugal against England; to detain all Englishmen residing in that country; to confiscate all English property; denouncing war in case of refusal: And, without waiting for an answer, he gave orders for detaining all Portuguese merchant ships that were in the ports of France. The Prince Regent of Portugal, hoping to ward off the storm, acceded to the shutting up of his ports; but refused to comply with the two other demands, as being contrary to the law of nations, and to the treaties that subsisted between the two countries. The court of Portugal then began to adopt measures for securing its retreat to the Portuguese dominions in South America. For that purpose, the Prince Regent ordered all ships of war fit to keep the sea to be fitted out; and also gave warning of what was intended to the English, directing them to sell their property, and to leave Portugal, in order thus to avoid an effusion of blood, which, in all probability, would have proved useless. He resolved also to comply, if possible, with the views of the French Emperor, in case he should not be softened to more moderate terms. But Bonaparte peremptorily insisted, not only on the shutting up of the ports, but on the imprisonment of all British subjects, the confiscation of their property, and a dereliction of the project of retiring to America. The Prince Regent, when he had reason to believe that all the English not naturalized in the country had taken their departure from Portugal, and that all English property had been sold, adopted the resolution of shutting his ports against England, and even of complying with the other demands of France: Declaring, however, at the same time, that should the French troops enter Portugal, he was resolved to remove the seat of government to Brazil, the most important and best defended part of his dominions.

Conduct of the court of Portugal.

It had been frequently stated to the cabinet of Lisbon, by the English ambassador Lord Strangford, that his Britannic majesty, in agreeing not to resent the exclusion of British commerce from the ports of Portugal, had gone to the utmost extent of forbearance; that, in making this concession to the peculiar circumstances of the prince regent's situation, his majesty had done all that friendship could justly require, and that a single step beyond this line of modified hostility must lead to the extremity of actual war. Nevertheless the prince regent, in the fond hope of preserving Portugal by conciliating France, on the 8th of November signed an order for detaining the few British subjects, and of the very inconsiderable portion of British property that yet remained in Lisbon. On the publication of this order, Lord Strangford removed the arms of England from the gates of his residence; demanded his passports; presented a final remonstrance against the recent conduct of the court of Lisbon; and retired to a British squadron, commanded by Sir Sydney Smith, who immediately established a most rigorous blockade at the mouth of the Tagus. A few days after, the intercourse between the court of Lisbon and the British ambassador was renewed. Lord Strangford, under due assurance of protection and security, proceeded to Lisbon on the 27th, when he found the prince regent wisely directing all his apprehensions to a French army which had entered Portugal, and was on its march to Lisbon, and all his hopes to an English fleet. The object of this march he was at no loss to understand; for Bonaparte had declared in his journals, that the house of Braganza had ceased to reign. Lord Strangford promised to the prince

November.

regent, on the faith of his sovereign, that the British squadron before the Tagus should be employed to protect his retreat from Lisbon, and his voyage to the Brazils.

The court of Portugal leaves Lisbon for Brazil.

On the morning of November 29th, the Portuguese fleet set sail from the Tagus, with the Prince of Brazil and the whole of the royal family of Braganza on board, together with many of his faithful counsellors and adherents, and other persons attached to his fortunes. The fleet consisted of eight sail of the line, with frigates, brigs, and Brazil ships, in all amounting to 36 sail. While they passed through the British squadron, our ships fired a salute of 21 guns, which was returned with an equal number. The friendly meeting of the two fleets, at a juncture so critical and important, was a sight exceedingly interesting and affecting. Four English ships of the line were sent by the British admiral to accompany the royal family to Brazil. After Portugal had fallen under the dominion of France, the valuable island of Madeira was committed to the protection of British troops.

Proceedings of parliament.

A new parliament assembled on the 22d of June 1807. Their debates during the summer were comparatively uninteresting; but when the second session was opened, the late expedition to Copenhagen, and our relations with America, furnished momentous subjects of discussion. Of these, the subject of the orders in council might be regarded as the most practically important; for, whatever might be said of the Copenhagen expedition, the deed was done; and the human misery it had occasioned, could not be repaired, even had the advice suggested by Lord Sidmouth been adopted, for fixing a time for the restoration of the capture—a proposal which was triumphantly rejected by ministers. But the measures with regard to America were still open to recal.

Berlin decree.

In November 1806, Bonaparte had issued at Berlin his famous decree, in which he declared the British islands to be in a state of blockade. He also shut the ports of all the countries under his authority against all vessels which had last cleared from Great Britain, and subjected to confiscation all cargoes of British produce or manufacture. In aid of this regulation, he afterwards declared that all neutral vessels coming into any port of his dominion, should bring with them what was called a certificate of origin; being an assurance under the hand of the French consul at the port of shipment, that the cargo was not of British produce or manufacture, and that all vessels which should be met at sea without such a certificate, should be liable to capture. This Berlin decree, which, from the impotence of France to enforce it in its most material points, ought to have been regarded as an insulting bravado, was very properly resented on the part of the Grenville ministry, by a mild decree, which interdicted the coasting trade of the enemy.

British orders in council.

Ten months elapsed without any other measure of commercial hostility from either cabinet, till November 1807 (a year after the publication of the Berlin decree) appeared our new orders in council, by the Portland ministry, containing these two substantial propositions: *First*, That France, and all its tributary states, should be held to be in a state of blockade; and that all vessels should be seized which attempted to trade from any neutral port to those countries, or from them to any neutral port. *Secondly*, That all vessels should be liable to seizure, which should have on board any such certificate of origin as was required by the Berlin decree. Neutral vessels intended for a French or hostile port, were directed at all events to touch first at Great Britain, from which, after paying certain duties, they may in some cases be allowed to proceed; and in all cases they are permitted, and indeed enjoined, to come to Great Britain when clearing out with a cargo from any port of the enemy.

America, from her sole enjoyment of independence, was deeply interested in the operation of these contending decrees, which placed her trade between two fires. But the interests of Britain were no less involved in this measure than those of America, and her trade to that quarter of the world began to suffer severely. The American merchants remonstrated against the orders, and petitioned parliament to rescind them. Their cause was pleaded at the bar of the house by an able lawyer, (Mr Brougham,) who did ample justice to their cause. The petitioners declared, that the obvious tendency of the orders in council was to annihilate our neutral commerce; and that it actually had reduced our American trade to one third of its former extent. The preamble to the orders in council had justified the measure, by declaring that the decrees of France had exhibited an unprecedented system of warfare, (for, independent of such provocation, our right to exercise such hostility towards neutrals, was not pleaded by the strongest advocates of the orders). It had been also stated, in the same preamble, that neutrals had acquiesced in these decrees of France, and submitted to them as part of the new system of war. It was proved, however, that the French decrees were not unprecedented. In 1739, in 1756, under the old government of France, and at three subsequent periods since the French revolution, decrees had been issued by the enemy for capturing all vessels laden even in part with British produce, and yet they had not been followed by any such measure of retaliation on the part of Britain. With regard to the Berlin decree, it was not true that it had either been enforced by France, or that America had acquiesced in it. General Armstrong, the American ambassador, so far from acquiescing in the Berlin decree, had applied, to learn whether it was intended to be enforced against American vessels: and it was answered by the French government, that the blockading decree was not intended to be enforced against the ships of that nation. From distinct evidence laid before the House of Commons, it was proved that neutral vessels had been publicly and regularly chartered on voyages from this country to the Continent of Europe after the Berlin decree, in the same manner as before it; that the prices of articles of colonial produce and home manufactures, continued the same in the continental markets after the Berlin decree down to the orders in council; that the greatest merchants in the neutral trade had never heard of a neutral vessel being condemned in the hostile ports; and that the rate of insurance of such vessels had not been raised by the Berlin decree, but only by the orders in council.

In defence of the policy of the orders, it was argued, that we should reduce the enemy by distress to abandon his system of blockade, and to permit the free ingress of our colonial produce and manufactures. The continent, it was said, would not calmly submit to such privations as the want of tea, sugar, tobacco, cotton, and foreign medicines. Bonaparte would at last be compelled, by the murmurs of fifty millions of human beings, languishing for luxuries to which they had been habituated, to abandon his excluding system. It is strange to observe, that at the moment when ministers were pleading for this probability, they were avowedly encouraging the smuggling trade between Britain and France; a trade which, as far as it could succeed, exactly supplied the enemy with those luxuries, for the loss of which we expected the continent to mutiny against its tyrant.

In opening the budget of 1808, the chancellor of the exchequer stated the supplies which had been voted to be L.48,653,170, from which was to be deducted the proportion furnished by Ireland, viz. L.5,713,601, which would leave a sum to be defrayed by Britain of L.42,933,601. The ways and means amounted to L.43,076,000. The loan for England and Ireland was ten millions and a half, of which eight were for the use of this country. The whole sum was to be founded in the 4 per cents, and the contractors for every L.100 advanced to the public were to receive L.118 : 3 : 6, so that the public paid for every L.100 capital L.4 : 14 : 6½ interest. In consequence of the loan of ten millions and a half, there was a capital of debt created to the amount of L.12,408,375, from which, after deducing a proportion of two seventeenths for Ireland, making L.2,954,375, there would remain as a permanent burthen upon Great Britain L.9,454,000, and an annual charge for interest of L.475,536.

Among the changes in military arrangement produced by the new ministry, was that of substituting a local militia for the unregimented levy of 200,000 men from the whole population, of which the late ministry had determined on calling out and training to arms. This local militia was to be balloted for in the different counties, in proportion to the deficiency of volunteers in each, between 18 and 31 years of age; nor were exemptions to be made but at a very high fine. The officers were to possess the same requisites as to property as those of the existing militia, except in one instance, namely, that whoever had held the rank of a field officer in the army, might hold the same rank in the militia, without such qualification. Volunteer corps might, if they chose, transfer themselves, with the approbation of his majesty, into this local militia. The period of service during the year was to be 28 days, exclusive of the days for assembling, marching, &c. for which pay was to be allowed. The expence was calculated not to exceed the present volunteer establishment. It would not exceed four pounds per man for the year. Having a regimental force of 400,000 men, in addition to the regular army of 200,000, which might, if occasion required, be augmented to 250,000, the empire might be considered as secure.

Beaten and overawed by the armies of France, the Emperor Alexander sought refuge from the disgrace of submitting to Bonaparte, in affecting to be his cordial ally; and pretending to have changed his whole opinion of the true interests of Europe, joined with his recent conqueror in a plan for its partition. Almost immediately after the capture of Copenhagen, he declared war against England; complaining that she had harassed the Russian trade; that she had refused his proffered mediation for a peace with France; that in the late war against France, a war instigated by herself, she had promoted only her own selfish ends, and had sent out expeditions to Naples, Buenos Ayres, Sicily, and Egypt; finally, that she had seized upon the Danish fleet. Austria and Prussia were also obliged to declare war against English commerce, though they had the decency not to accompany their declaration with a complaining manifesto.

Russia declares war against England.

Bonaparte resolves to subjugate Spain and Portugal.

The treaty of Tilsit was hardly concluded, when Bonaparte turned his views to the West, and resolved on the subjugation of Portugal and Spain. Perhaps it was his first design not to overthrow the thrones of these kingdoms, but, under the veil of alliance and union, to reduce them to the same abject dependence as the confederations of the Rhine, Holland, and Switzerland. With this view he had called the flower of the Spanish troops to serve in his late sanguinary campaigns in Germany and Poland. Through his ambassador, Beauharnois, at the court of Madrid, he fomented discord in the royal family of Spain, that he might assume to himself the arbitration of their differences. The French ambassador suggested to Ferdinand, Prince of Asturias, the idea of intermarrying with a princess related to the Emperor Napoleon. The anxiety of the prince of Asturias to avoid an union with another lady, selected for him by his greatest enemies at court, induced him to acquiesce in the proposition of Beauharnois, with the reservation, that it was to meet with the approbation of his royal parents; and he wrote a letter, signifying his wishes to the French emperor. This clandestine communication, and other circumstances artfully prepared, gave colour to an accusation insidiously prepared against the innocent prince. A few days after he wrote the letter to Beauharnois, he was arrested and confined in the monastery of St Lawrence. On the 31st of October, all the members of the different councils of state being assembled, a declaration by the king was read to them, stating a discovery that the prince of Asturias had formed a conspiracy for dethroning his father. He had been surprised, it was said, in his own apartments, with the cyphers of his correspondence, which were laid before the council of Castile, with instructions for them to investigate the whole matter. The whole Spanish nation instantly suspected, that the pretended conspiracy was an infamous calumny, fabricated by Godoy, the Prince of Peace, and Bonaparte, for the purpose of removing the only obstacle which then opposed their designs. The imprisonment of the Prince of Asturias, and the decree against his person, produced an effect quite contrary to the expectations of the favourite Godoy, who now receded in fear, and pretended to moderate a reconciliation between the royal parents and their son. He dictated penitential letters from Ferdinand to both the king and the queen, and made the Prince of Asturias sign them while a prisoner. There is nothing in these confessions of a very heinous nature; and they may all be fairly supposed to allude to the step which Ferdinand had taken, in writing to Napoleon without the king's knowledge on the subject of his marriage. But a decree, which had been addressed to all the clergy, ordaining a solemn thanksgiving to God for the king's deliverance, was meant to preserve the idea, that the prince had harboured designs against his father's government, if not against his life. On the 5th of November, a royal edict was addressed to the governor *ad interim* of the council of Castile, declaring that the voice of nature having disarmed the hand of vengeance, the king had been moved by pity, and the intercession of the queen, to pardon his penitent son, who had given information against the authors of the parricidal design.

Such was the state of affairs, when a French courier arrived at the royal palace of St Lawrence, with a treaty concluded and signed at Fountainbleau, on the 27th of October, by Isquierido, the plenipotentiary of his Catholic majesty, and Marshal Duroc, in the name of the French emperor. By this treaty it was agreed, among other articles, that the province of Entre Minho y Duero should be made over in entire property and sovereignty to the king of Etruria, with the title of king of Northern Lusitania. The province of Alentejo and the kingdom of the Algarves, in entire property and sovereignty to the Prince of Peace, to be by him enjoyed under the title of Prince of the Algarves. The provinces of Beira tras los Montes, and Portuguese Estremadura, were to remain undisposed of till there should be a general peace. The kingdom of Northern Lusitania, and the principality of the Algarves, were to acknowledge, as their protector, his Catholic majesty the king of Spain, and in no case were to make peace or war without his consent. In case of the provinces of Beira and Portuguese Estremadura devolving at a general peace to the house of Braganza, in exchange for Gibraltar, Trinidad, and other colonies which the British had conquered from Spain and her allies, the new sovereign of these provinces was to contract, with respect to his Catholic majesty, the same obligations as the king of Northern Lusitania, and to hold his territories on the same conditions. The king of Etruria ceded that kingdom in full property and sovereignty to the emperor of the French and the king of Italy. By a secret convention, it was agreed that French troops were to be admitted into Spain, where they were to be joined by bodies of Spanish troops, and marched into Portugal. Another body of French troops, to the number of 40,000, were to be assembled at Bayonne before the end of November, to be ready to enter Spain in case the English should send reinforcements to Portugal.

A French army marches into Spain.

The French forces, which had assembled on the borders of Spain, remained but a short time inactive. Early in 1808, a corps entered Catalonia, and on the 16th of February obtained possession of the town and citadel of Barcelona, and of the strong position of Monjuich. As a slight pretence for these movements, it was said that the French were marching to assist in repelling the insults of the British army on the Spanish coast; and rumours were whispered of an intended invasion of Algiers and Morocco. At Monjuich and Pampeluna, some slight resistance was made by the national troops. There seemed, however, to be no organ of the general will; and although the Spanish troops were rapidly advancing from Portugal to Madrid, yet the feeble court who directed them, were every day issuing contradictory orders. The people, however, were at last alarmed, and roused from torpor. It was rumoured that the king was preparing to leave Aranjuez for Seville, with a view to emigrate to his American dominions. The character of the Prince of Peace made it highly probable that he would instigate the royal family to such a resolution, as he possessed immense riches, and foreseeing the impending storm, might well be anxious to withdraw. It was rumoured, with equal probability, that the Prince of Asturias was sufficiently attached to his country to oppose the design. A popular commotion broke out at Aranjuez. The palace of the Prince of Peace was attacked; and though he saved himself by flight, their majesties found it necessary to appease the public indignation, by proclaiming that Godoy, their favourite, was discharged from his high offices and commands, and was permitted to retire wherever he might chuse. The people of Madrid, whither Godoy had fled from Aranjuez, were determined that he should not retire with such impunity. They rose like the people of Aranjuez, discovered the Prince of Peace in a garret, and committed him to a common jail. In the midst of these commotions, Charles IV. published at Aranjuez, on the 19th of March, a formal abdication of the Spanish throne; either impelled by personal fears, he gave way to the popular wishes in favour of his son, or was terrified into the measure by Bonaparte, who, for the sake of getting the favourite of the people, the Prince of Asturias, into his power, soon after invited him to a fatal interview, under the new title of Ferdinand VII.

The first act of the new king was to publish a manifesto and demonstration of his own innocence. He confiscated the effects of the Prince of Peace, and appointed to the presidency of the grand council of Castile, a popular nobleman, the Duke of Infantado, who was known to be attached to the English interests. On the 23d of March, he made his public entry into Madrid. Two days before that time, the French army under the Duke of Berg, had also entered the Spanish capital. While the governor and garrison of Madrid submitted to the degrading act of being obliged to welcome an enemy's army come to overawe them, the mass of the people were in a state of high fermentation, and some mortal encounters took place between the individuals of the two nations. Hitherto the occupation of the country by the French had been endured, on the part of the Spaniards, more from stupefaction than cowardice. But when they saw the French General Duhesme throwing ammunition and provisions into Barcelona, they remonstrated against the portentous movement.—"Your troops," said the Spanish Captain-general Espetella, in a letter to the French general, "that occupied the citadel and the fortress of Monjuich, might have considered all the houses of Barcelona as so many magazines, and the provisions they contained as their own. Your excellency occupied the fortresses in the name of the emperor and king as an ally; and it was only on the faith of this, that the Spanish government consented to its occupancy. The city gave you an honourable reception, and shared with you the provisions destined for her own use." A fresh insult was, however, offered to the Spaniards, when the Prince of Peace, whose imprisonment had occasioned the utmost joy throughout the kingdom, was liberated by the imperative orders of Bonaparte. It had been intended to bring him to trial, but the intercession of the old queen with the French emperor, obtained the release of her guilty favourite, who instantly repaired to Bayonne. But though the Duke of Berg possessed Madrid with a large army, while Ferdinand, the idol of the people, remained in his capital, it was impossible to execute the plans which the French meditated. It became, therefore, the grand object of Bonaparte's ambassadors and emissaries, to persuade the new king to leave the spot on which they durst not arrest him. General Savary arrived as a new envoy from Paris, he announced the intention of the French emperor to visit Madrid, and suggested the propriety of the Spanish monarch paying him the compliment of meeting him on his own frontiers. Ferdinand unhappily fell into the snare: he was decoyed under the pretence of procuring the favour of Bonaparte, by a friendly meeting, to proceed from Madrid to Burgos, from thence to Vittoria, and finally to Bayonne, where he found himself in a short time in the hands of Bonaparte, like another Montezuma in the power of Cortes. Together with the released Prince of Peace, Charles IV. and his queen arrived also at Bayonne. Bonaparte had found it easy to force and persuade the aged royal pair to leave their native dominions, after they found an escape to America impracticable; nor had the Spaniards to regret that they had lost an imbecile sovereign, and a queen who was still more unpopular, from her connections with the Prince of Peace.

Having got so many members of the royal family into his possession, Bonaparte immediately threw off the mask, and in a direct message to Ferdinand the Seventh, required of him, and all his family, to renounce the crown of Spain and the Indies. Charles, his queen, and the Prince of Peace, were easy instruments in the tyrant's hands; and Charles immediately declaring that his former resignation had been forced upon him by the fear of popular tumult, reclaimed his right to the sceptre, that he might transfer it to the Emperor of France. Ferdinand, though now a prisoner, would not however resign his right to the throne, except on certain conditions, calculated to prevent the alienation of the kingdom to any foreign power. He proposed that Charles should return to Madrid, whither he would attend him as a dutiful son; that the cortes, or at least the great council, should be assembled; that Charles should dismiss from his presence the detested Prince of Peace; and, in case of the aged king resigning the burthen of government, should transfer it to none but himself. These negotiations had lasted for some time, and Ferdinand still continued resolute, when a memorable conference took place, (on the 5th of May), at which the Emperor of the French, the old King and Queen of Spain, the Infant Don Carlos, Godoy Prince of Peace, some grandees of Spain, and the Spanish minister, Don Pedro Cevallos, were present. Ferdinand was, after some time, called in to it by his father. The queen, in a transport of passion, addressed him as a traitor, who had for years meditated the death of the king; but proclaimed her own infamy, by adding, "I tell you to your face, that you are my son, but not the son of the king." She was proceeding in her reproaches, when Napoleon interrupted her, by saying, "I give to Ferdinand the crown of Naples, to Don Carlos that of Etruria, with one of my nieces in marriage to each of them; let them declare if they be willing to accept this offer." After a short silence, Don Carlos replied, "Emperor, I am not born to be a king, but an infant of Spain." Ferdinand was silent. Bonaparte, after a short pause, resumed: "Prince, you must choose between cession or death." Six hours were allowed to him for coming to a determination. King Charles seconded the threat of the emperor against him and all his followers, and Ferdinand, humanely anxious not to involve the lives of a number of persons comprehended in the threat, made the resignation that was commanded. He was immediately deprived of his coach of state and sword of honour, watched by a party of the militia, and allowed no attendant but the commander of the guard.

Ferdinand is compelled by threats to resign the crown.

Charles IV. cedes to Bonaparte Spain and the Indies.

Charles the Fourth ceded to Napoleon all his rights to the throne of the Indies, stipulating (if such a transaction could be coupled with the name of stipulation,) that the integrity of the kingdom should be maintained, its religion upheld, and its sovereign, whoever he should be, independent.

Tumults at Madrid,

The intelligence of this transaction excited a tremendous convulsion at Madrid. On the day fixed for the departure of the King of Etruria, of the daughter of King Charles, and her son Don Francisco, for Bayonne, where they were summoned by Bonaparte, the people surrounded the palace to which they were bidding adieu. The carriages were indeed suffered to depart, but the indignation and pity of the people were wound to the highest pitch, by beholding the tears of the Infant Don Francisco. While their emotion was at the highest, a detachment of French soldiers arrived, and immediately a scene of carnage commenced. It is not fully ascertained whether the populace or the French were the first aggressors, but the latter were the first who had recourse to fire arms; and, at the discharge of these, the common people seized on every species of weapons that could be found.

which are quelled by the French troops.

The Frenchmen employed in this dreadful day in Madrid did not exceed 10,000. They succeeded at last in quelling the inhabitants, after a terrible slaughter in the morning, which was changed into a regular military execution in the afternoon. The Spanish troops had no share in the contest, having been confined to their barracks by their officers. If they had joined their countrymen, there can be no doubt but that every Frenchman in Madrid might have been exterminated; but the retaliation would have been equally dreadful, for besides the 10,000 in Madrid, there were 50,000 in the immediate neighbourhood, who would have, in their turn, taken vengeance on the inhabitants.

Duke of Berg appointed viceroy of Spain.

By a royal edict dated at Bayonne, (May 4th), the Grand Duke of Berg, whom Charles in the edict called his cousin, was appointed lieutenant-general, or viceroy, of all Spain. Before the courage of the kingdom was yet fairly displayed, it seemed as if it were necessary to discharge, in a few disgraceful years, some of the baser spirit which yet remained. The junta at Madrid disarmed all the citizens of the capital, and even anticipated the edict of Bayonne, for making the Duke of Berg their president. The council of Castile also sanctioned by their name, and published the edicts of Bonaparte and his viceroy; and the Inquisition, true to its old disgraceful principles, addressed a circular to the people, inviting them to submit to the paramount power.

Base proceedings of the public bodies in Spain.

Proceedings of the junta at Bayonne.

Bonaparte supported these addresses, by declaring to the Spaniards, that he was determined to make them what they had once been,—a great, glorious, and happy nation. "Your princes, (he said), have ceded to me their rights to the crown of the Spains; your nation is old—my mission is to restore its youth." This address wass followed by a decree for summoning a junta of Notables to represent the Spanish nation at Bayonne, there to fix the forms of a new government. To constitute this assembly, he named about 150 individuals of different classes and conditions, but only about 90 were convened. The junta at Bayonne held their twelfth meeting on the 17th of July, on the day appointed for the acceptance of the new constitution. In the chamber where they sat, were erected a magnificent throne, and a richly decorated altar, the service of which was performed by the Archbishop of Burgos. Joseph Bonaparte, to whom Napoleon had transferred the crown of Spain, addressed the junta as their king, and was answered in a speech from the president, after which the oath of allegiance was administered to several members, and the junta attended his levee. We have heard of the high spirit and independence of the Bayonne junta, as presenting the first obstacle to Bonaparte's ambition, but there is no symptom of any such spirit in these transactions.

Joseph Bonaparte made King of Spain.

He makes his public entry into Madrid.

King Joseph set foot on the territory of Spain on the 9th of July 1808, and made his public entry into Madrid on the 20th, attended by the members of the Bayonne junta. He had a personal guard of ten thousand Italians and other troops, independent of an army of eighteen thousand men, under General Bessieres, who were posted at Madrid for his defence. To Spain it was still more humiliating than the entry of an usurper into her capital, to see, in the list of that usurper's officers of the household, the names of some of her noblest grandees, and even the names of men bearing the character of patriotism, who had struggled against the Prince of Peace, and laboured to get the Prince of Asturias on the throne. Don Louis Mariano de Urquijo, was made his secretary of state; Don Pedro Cevallos, minister for foreign relations; the Duke of Park, the Duke of St Germain, the Duke of Infantado, the Count Santa Collona, and the Dukes of Ossuna and Sotomayor, were his captains or chamberlains. It was not until the mass of the people (the populace itself) had set an example of patriotism to those men, that any of them redeemed their honour, by apostatising from the usurper. But though courtiers and courtly patriots could brook the degradation of the Spanish name—though some of the nobility, from mean despair, and others from still meaner hopes, acquiesced in the change of dynasty, the people were agitated by nobler passions. Though the flower of their regular army was serving abroad; their north eastern frontier in the hands of French garrisons; their metropolis, their interior, and the neighbouring kingdom of Portugal, possessed by 100,000 veteran Frenchmen, commanded by the best officers in Europe; without arms, ammunition, or treasury, and deserted by their own government, they rose to combat with the masters of Europe—with the tactics of Bonaparte himself. It is true that in many instances the conduct of the Spaniards has not been consistent with this bold commencement; but, under such circumstances, to have risen even for a moment with unanimity, exhibits a picture unparalleled in modern history. The motto of the insurgents was, "*The Spanish blood shed at Madrid cries for vengeance.*"

The public mind had been strongly agitated ever since the massacre of Madrid; but it was not till the abdication of Ferdinand was announced, that a general explosion burst forth. The anniversary of the tutelary saint of the prince, St Ferdinand, awoke all the sensibility of an ardent, devout, and loyal people. On that day, (the 27th of May), the insurrection commenced in many places. In Valentia, Don Miquel de Saavedra, captain-general of the province, was put to death for opposing the insurgents. At Cuença, Carthagena, Malaga, and Granada, and in the Castiles, and Estremadura, the same scenes were exhibited. At Cadiz, when it was known that the patriots had corresponded with the English at Gibraltar, Solano, the lieutenant-general of Andalusia, who headed the French faction, came post haste to the city, and thundered forth proclamations against their designs; but the people, conducted by Spanish officers, rose and surrounded his palace, and put him to death, in the act of proclaiming his attachment to Napoleon. These unconnected efforts were quickly brought into unity by the establishment of provincial juntas.

The lead in the affairs of the patriots was taken by the supreme junta of Seville, which, with a happy audacity, assumed, and, for a time, exercised all the functions of sovereign authority. Laying hold of some statutes in their constitution, which authorised their rejecting the orders of the supreme council of Madrid, when the capital should be in the hands of foreign troops, they proclaimed Ferdinand the VII. and war against France. This pre-eminence which they claimed in authority, was due to them from the circumstances of Andalusia. That was the province in which there were most veteran native troops, the only foundery of cannon in the kingdom, and the greatest store of arms and ammunition. It is the province, too, in which Gibraltar is situated, and which could best receive assistance from England. It is the province of opulence and resources. Although it was not among the highest ranks that the patriotic ardour was strongest, many of the dignified clergy and nobility joined the general enrolment of the people. The bishop of St Andero appeared among the patriots, and the Count de Montego was indefatigable in enlisting and drilling the volunteers. The monasteries and the universities poured forth recruits. The standards of the latter bore the names of saints; those of the former wore the names of Greek or Roman heroes. By an agreement between the Spanish general Castanos, and the patriots of Cadiz, on the one part, and of the British officers at Gibraltar and in the Mediterranean, on the other, Lord Collingwood arrived with ships to take the command of the English fleet off Cadiz, and general Spencer, with six or seven regiments, from Gibraltar. Lord Collingwood offered his services for the reduction of the French fleet in the harbour; but Thomas de Morla, who succeeded to the government of the city after the execution of Solanos, determined that this should be exclusively an achievement of the Spaniards. The French ships lay in the canal of the arsenal, in such a position, that they were out of the reach of the cannon of the castles, as well as of the Spanish squadron off Cadiz; but the gun-boats, bomb-vessels, and batteries, constructed on the isle of Leon. and near fort Louis, soon reduced admiral Rosilly (June 14th,) to surrender the fleet, consisting of five ships of the line of 74 guns, one frigate, and four thousand seamen and marines.

Advice having been received, that a detachment of French had assembled at Tavira, to enter Spain from the side of Portugal, by the river Guadiana, general Spencer, with his detachment, set sail for the Guadiana, and landed his troops at Ayamonte. Three ships had already been sent to the mouth of the Guadiana by general Purvis. Alarmed at these movements, the French concentrated all their force at Lisbon, excepting a few detachments in fortified places. The Portuguese also rose upon their oppressors, and sent solicitations for succours to admiral Sir C. Cotton, who commanded the naval forces of Britain in that quarter. The change of circumstances, which had thus changed the relations of Spain and Great Britain towards each other, hardly needed the ceremony of a proclamation, to establish friendship and alliance. The juntas, however, formally proclaimed peace and alliance with Great Britain, Sweden, and Portugal; and the Portuguese provinces of Algarve and Alentejo put themselves under the protection of the junta of Seville; so did the Canary isles. Envoys were dispatched to the transmarine establishments of Spain, in the Americas, West Indies, and Asia, inviting them to the cause of the patriots, and of Ferdinand. Proclamations had been sent out to those colonies by king Joseph; but the vessels which carried them had been mostly taken by the English, and the crews of those which arrived had been imprisoned by the transatlantic patriots. Meanwhile the Viscount de Materosa, Don Diego de la Vega, and other deputies from the Spanish and Portuguese provinces, arrived at London. Peace was proclaimed with Spain in the London Gazette, on the 5th of July. The Spanish prisoners in our jails, to the number of many thousands, were liberated, clothed, and sent home to join their countrymen in arms. Independent of the arms and treasures promptly forwarded by government, the public ardour in Britain, for the cause of the patriots, was evinced by subscriptions that were set on foot throughout the kingdom; and some corps of militia volunteered their services in the cause.

Some admirable precautions were published by the Seville junta, calculated to direct the desultory warfare which they had determined to pursue, in preference to risking pitched battles. Happy had it been if the several juntas, in their zeal to animate their countrymen, had not forgot the precaution of adhering to truth, in the calculation of their fighting men. While they hoped to terrify the French by exaggeration, they only deceived each other, and their allies.*

State of the French and Spanish armies.

Of the French armies in the whole peninsula, including the army of Junot in Portugal, a force exceeding 100,000 men, 50,000 were stationed in Madrid, or its vicinity, under Prince Murat, and marshal Moncey. From this great body, detachments were sent to take possession of Cadiz and Valentia; the former detachment commanded by Dupont, the latter under marshal Moncey. Marshal Bessieres had in charge to guard the roads between Madrid and Bayonne, and to bridle the country as much as possible, by spreading to the right and left.† This northern army was opposed by the Spanish general Cuesta, at the head of the forces of Gallicia, Asturias, Estremadura, and Leon, and those of some insurgent districts of Biscay. General Castanos was commander in chief of the four kingdoms of Andalusia, with the provinces of Granada and Valentia, which had united themselves with Andalusia. Admiral Cisneros was captain-general of Murcia. Don Joseph Palafox of Arragon; and Count Espetella of Catalonia.

Operations of General Dupont.

Battle of Baylen.

Dupont surrenders, with his whole army, to the Spaniards.

The army of Dupont left Madrid 20,000 strong, crossed the mountains of the Morena, and descending into Andalusia, took and pillaged Cordova. At this place, the French general was informed that Castanos was advancing with 45,000 patriots. He retired first to a strong position behind the Guadalquivir, and from thence fell back to Baylen. Already he had lost great numbers by the desultory attacks of the insurgents. It was not, however, till a whole division of his army under general Wedel, and a reinforcement under general Belliard, which were on their march from Madrid, had been separated from him by the judicious movements of Castanos, that his case became hopeless. As his last resource, he made a bold attack on 25,000 of Castanos' army,‡ with all the forces under his immediate command, was repulsed with the loss of 3000 men, and obliged to surrender at discretion. General Wedel's division was comprehended in the capitulation. It was agreed, that they should be sent home by sea. The battle of Baylen was fought on the 20th of July. General Moncey was not more successful in Valentia. Marching upon the city of Valentia, after routing the peasants at the passes of the mountains, he began to cannonade its walls, when he was attacked by general Caro, the nephew of Romana, with the covering army, was beaten back to his camp, and from thence obliged to fly to Madrid. Of 15,000 men who had marched with Moncey from the Spanish capital, 1500 were taken prisoners, and 10,000 returned, with a prodigious proportion of wounded. In the campaign of Arragon, the defence of Saragossa displayed a heroism never surpassed in ancient or modern times. On the 14th of June, before any force could be organ-

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* This was sadly experienced by Sir John Moore.

† Of the 14 provinces of Spain, there were four in the hands of the French when the insurrection broke out, Navarre, Biscay, and the two Castiles. The fortress of Barcelona was also in their possession.

‡ Of these, one half were irregulars.

Siege of Saragossa.

ised for the protection of this defenceless city, 9000 French, under the orders of general Le Febre, took up a position on the heights which command Saragossa. A small party of cavalry even penetrated into the town; but they paid dearly for their rash advance, being cut off to a man. The Saragossians had hastily planted some cannon before the gates of their city, and also in some favourable positions without the town; when, on the 15th of June, the French sent a detachment against these out-posts, while their main body attempted to storm the city at one of their gates. The Saragossians resisted both attacks with successful fury. They closed with the French after single discharges, and overpowered them. A party of the enemy that entered the town were cut to pieces, and Le Febre retired beyond the reach of their cannon, losing, in his retreat, 400 cavalry, and 27 baggage waggons. This was but the prelude to a more dreadful siege. The French receiving reinforcements of troops and artillery, had again nearly invested the town before the expiration of June, and reoccupied the adjacent heights. During their advance, the Saragossians employed their slender means of defence to the best advantage. They tore down the curtains from their windows, and formed them into sacks, which they filled with sand, and piled up before every gate in the form of a battery, digging round each of them a deep trench. The gates of Saragossa are, in many places, connected by the mud walls of gardens within the town; in others by buildings, or by the remains of an old Moorish wall, which had not even a platform for musquetry. Through these intermediate houses, and mud walls, the brave citizens broke holes for musquetry and cannon. The houses in the environs of the city were pulled down or burnt. Gardens and olive grounds were cheerfully rooted up by the proprietors, whenever they impeded the defence of the city, or covered the approach of the enemy. The exertions of the men were imitated by the women, and even the children.

The heroism of the citizens was only equalled by their industry, and by the sagacity of those who conducted the defence. Gunpowder was manufactured within the walls of the city, though it was on fire in every quarter. At the end of nearly two months, every desperate effort had failed to recover the adjacent heights and the environs: the bodies, but not the courage, of the besieged were almost exhausted. On the 4th of August, the French opened a tremendous fire on one quarter of the town: the mud walls had been battered down: the French columns had entered, and were in possession of one-half of the city, even to the central street. The French general then demanded a capitulation, in these words,—"*Head quarters, Santa Engracia: The Capitulation.*" He was answered in the following words: "Head quarters, Saragossa: War to the knife." The French occupied one side of the main street called Corso. The Arragonese threw up their entrenchments within a few paces of them, on the opposite side. In day light, it was certain death to appear within this horrid interval; but during the night, the combatants often dashed across the street against each others batteries. At last the ammunition of the Spaniards began to fail, and the people were calling out to be led to attack the enemy with only their knives, when, at this awful crisis, a convoy of provisions and ammunition, and 3000 Spanish guards, Swiss and volunteers of Arragon, unexpectedly found their way into the city, under Don Francis Palafox, the brother of the general. A council of war now determined, that if the whole of Saragossa should be consumed, the patriots should retire over the Ebro to the suburbs, and defend them till they perished. The people shouted when they heard the resolution. For eleven days the conflict was continued from house to house, from room to room, when the French had again lost all but about an eighth part of the city. During the night of the 13th of August, the fire of the French was particularly destructive; and, when their batteries ceased, flames were seen to burst out in many parts of the buildings in their possession. On the morning of the 14th, to the great surprise of the Saragossians, the enemy's columns were seen at a distance retreating over the plain, on the road to Pampeluna.

In Catalonia, the French general Duhesme had been directed to reduce Gerona, at the same time that Le Febre was sent against Saragossa; but, after spending a month in the siege, he was threatened by the insurgents in flank, and precipitately retreated. The French prevented (but with the utmost difficulty) the patriots from cutting off the communications of Figueras, and investing Barcelona. Such were the successes of the patriots in the south and east; while their affairs in the north of Spain wore a much less favourable aspect, from the fate of a battle which they lost at Medina del Rio Seco, in the province of Leon. Marshal Bessieres, while he dispatched a force against Saragossa, had also pushed forward columns against Segovia, Logrono, Valladolid, and St Andero. Segovia was taken, after the defeat and dispersion of the peasantry before its walls. The town and province of Palentia was also disarmed, and the members of the council of the captured towns were deputed to go to Bayonne, there to supplicate the forgiveness of Joseph Bonaparte, and swear fealty to his *Catholic majesty*. General Merle had proceeded to the mountains of St Andero on the 21st of June, and defeated the natives under their patriotic bishop in one quarter, while General Ducos drove them from post to post into the town from other points. The French generals then entered St Andero on different sides: the peasants returned to their homes; and the city swore fealty to the usurper. But the severest blow to the patriotic cause, was the defeat of the army of the western provinces under Cuesta. That general, whose forces comprehended all the prisoners restored by the British government,[*] was attacked (on the 14th of July) on the high grounds of Medina del Rio Seco by General Bessieres. All the positions of his raw troops were carried. He lost all his artillery, his baggage, stores, and the better part of his army. The Spaniards fled through Benevento as far as Astorga.

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[*] Cuesta's army, by the French account, amounted to 35,000; by that of the Spaniards, to less than 16,000. The French army were at least 12,000 strong, and had a large force of cavalry.

They were pursued for many days; and all the places which they left behind them surrendered as the enemy came up.

It appears, however, that, in spite of this defeat, the patriots were not without hopes of rallying even under Cuesta, and that reinforcements were expected to join the fugitives from Medina. The battle of that place was certainly not regarded as a sufficient counterbalance to the surrender of Dupont at Baylen, and the symptoms of a resisting spirit which were still displayed. When the news of the battle of Baylen had reached Madrid, the French immediately had begun to fortify the Reteiro. On the evening of the 29th of July, they began to evacuate Madrid. King Joseph, with the last companies of the troops, left the Spanish capital on the 29th, from whence he proceeded to Burgos, after plundering the public treasury of the plate and the crown jewels of his unfortunate predecessors. It was observed by the Spaniards, "that *Joseph had put the crown into his pocket, which he durst not wear upon his head.*"

While the French government could not extinguish the flame of insurrection in Spain, they were still less able to prevent its explosion being heard all over Europe. Bonaparte had in vain attempted to impress the Spanish regiments, in that army which he kept watching over his late conquests in Germany, with an idea, that the most respectable part of their countrymen had sanctioned his proceedings. He published, indeed, an account in the Moniteur, of those regiments having voluntarily come forward to devote themselves to his cause, and, having formed a detachment, to beg the honour of being the body-guard of Joseph. If any such offer was made, it ill accorded with the subsequent spirit of the same troops, who, when they heard of the true state of their country, planted their colours in the centre of a circle, around which they formed, and, having sworn an oath of patriotism on their knees, marched out through the hostile battalions which surrounded them, but who did not choose to put their courage and despair to the proof. Ten thousand Spaniards, stationed under the Marquis Romana on the island of Laugland, Zealand, and Jutland, who had thus emancipated themselves from the French yoke, were brought off by our fleet in the Baltic under Admiral Keats, and were conveyed, with their stores, arms, and artillery, to Corunna, on the 30th of September.†

A British army arrives in Portugal.

The whole aspect of Spanish affairs, had inspired hopes in the beginning of summer, that the co-operation of a British army would not be thrown away in the Peninsula; and for this purpose, a force of about 10,000 men set sail from Cork on the 12th of July, and arrived at Corunna on the 20th. Sir Arthur Wellesley, who commanded them, offered the assistance of his forces to the Junta of Gallicia; they replied, that they wanted not men, but arms, ammunition, and money, but recommended a diversion by the British in Lisbon. The army then sailed for Oporto, but was left inactive there, while Sir Arthur proceeded in person to have a conference with the British admiral, Sir Charles Cotton, off Lisbon. On board of that admiral's ship, he received information from General Spencer, that the Junta of Seville did not require the co-operation of his little army; he therefore gave orders to General Spencer to join him, in his proposed operations on Portugal. Before he landed his troops, he received advice from home, that 5000 men, under General Anstruther, were proceeding to join him, and that 10,000 men, under Sir John Moore, would speedily be detached for the same purpose.

General Moore's mission t Sweden.

This last commander had been sent, in the month of May, to assist our forlorn ally, the King of Sweden, against a combined attack from Russia, France, and Denmark. His army reached Gottenburg on the 17th of May, but was not permitted to land. Sir John Moore repaired to Stockholm, to communicate his orders, and to concert measures for the security of Sweden. He there found, to his surprize, that though the Swedish army was quite insufficient for defensive purposes, his Majesty's thoughts were intent on conquest. It was first proposed that the British should remain in their ships, till some Swedish regiments should be collected at Gottenburg, and that the combined forces should land and conquer Zealand. Upon an examination of the plan, it was found that the island of Zealand, besides its fortresses, contained a regular force superior to any that could be brought to bear against it, and that the adjacent islands were full of French troops, which could not be prevented from crossing over to it in small parties. It was next proposed, that the British alone should land in Finland, storm a fortress, and take possession of the province. But General Moore justly represented, that 10,000 British troops were insufficient to encounter the principal force of the Russian Empire, which could quickly be brought from Petersburgh. The Swedish monarch is said to have haughtily told Sir John Moore, that he would command him to undertake any enterprize which he might think proper. Sir John Moore asked, by what authority he should do so. "By authority from your own sovereign," replied Gustavus. Sir John begged to be shewn the document; a reply which was felt by the monarch as an implied doubt of his royal word; and for daring to disbelieve a false assertion, he ordered the British commander to be put under arrest. Sir John escaped, however, from Stockholm in disguise, and, conformably to his instructions, brought back his troops to England.

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† The common account which is given of the first communication of the state of his country to the Marquis of Romana, is, that a Swedish clergyman, in the disguise of a low and travelling tradesman, arrived at the head quarters of the Marquis, and addressed him in the streets, at first under the pretence of offering him some smuggled coffee for sale, but afterwards found means to intimate the object of his errand, by speaking in Latin. The writer of this article does not presume to contradict the whole story of the Swedish clergyman, but can affirm, from his own knowledge, that a person, who is not a Swedish, but a Scotch Roman Catholic clergyman, (his name is Robertson,) received L. 1000 from the British government for communicating the message of our cabinet to the Marquis of Romana at his head quarters in Germany. Mr Robertson had been hired to do so; and proceeded to the continent, at the risque of his life, availing himself of a German education, which made him easily pass for a native merchant. He found much less difficulty than the Swedish agent is represented to have met with. He found Romana, not surrounded by spies and watches, but accessible in his own hotel, where Robertson took up his lodgings, and had a conversation with him the day after his arrival. Romana was, indeed, at first very cautious, and would not believe that the other was an empowered agent, till Robertson proved, that he must have been informed by a British minister lately resident in Spain, of circumstances known only to the marquis and the minister. Robertson asked Romana, if he remembered having dined with Mr ——— in Spain on a certain day, and their having looked over certain books and pictures after dinner. He reminded him also of certain remarks that had been made; which Romana recollected. The Marquis then had no doubt of Mr Robertson's having been sent by the British government; but committed himself no farther in conversation, than by saying, that he should consult the other officers of the Spanish troops upon the subject.—The writer of this article received the above statement from the Scottish clergyman's own mouth, and knows that he received the reward already mentioned.

Operations of Sir Arthur Wellesley.

Strengthened by the assurances of speedy reinforcements, Sir Arthur Wellesley determined to disembark in Mondego Bay, a situation in which he could be supported by a Portuguese army, which had advanced to Coimbra. On the 9th of August, the advanced guard marched forward on the road to Lisbon, and on the 15th had a slight action with the French at Obidos. Next day they halted, and on the day after an attack was made upon a large force of the enemy, under General Laborde, at Roleia. Their force amounted to 6000 men; but there was some reason to believe that it would be joined by another body of equal force, under General Loison, who had gone to quell an insurrection in the south of Portugal, but was expected to return in the course of the night. The French were defeated, but retreated in good order. By this success the road was cleared to Lisbon. On the day after this affair, the British army moved to Lourinha, to facilitate the junction, and protect the landing of the troops under General Anstruther, after which they resumed their march. But Junot was determined to attack the British army before its reinforcements should arrive. Leaving Lisbon with the greater part of his forces, he came up with Sir Arthur Wellesley on the 21st of August, and attacked him in his position at Vimeira. The French renewed their onset in different columns, with the utmost impetuosity. They were repulsed at all points, after repeated charges with the bayonet, and at last retreated with the loss of about 3000 in killed, wounded, and prisoners, leaving behind them 13 pieces of cannon and 23 ammunition waggons. After the dispositions for the battle of Vimeira had been made, and the action already commenced, Sir Henry Burrard, who was superior in command to Sir Arthur Wellesley, arrived at the scene of action; but declined to deprive Sir Arthur of the honour of obtaining a victory, which appeared so probable.

Battle of Vimeira, 21st Aug.

On the 22d, Sir Hew Dalrymple, the lieutenant-governor of Gibraltar, arrived to take the command over both at Cintra, the place to which the British had moved after the battle. When intelligence was received in England, in the words of Sir A. Wellesley, that the whole of the French army in Portugal, under the command of the Duke of Abrantes in person, had sustained a signal defeat, the public hope was naturally sanguine that the victory would be followed up by important advantages. The arrival of the next dispatches was celebrated by the firing of the Park and Tower guns, at a late and unprecedented hour of the evening. With astonishment it was learnt in the morning, that this ceremony had been performed for a convention, which had been signed at Cintra, between the respective generals of the British and French armies; a convention founded on the basis of an armistice, agreed upon the day after the battle of Vimeira. It was stipulated, among other articles, that the English government should be at the expence of transporting the whole of the French army to any of the ports between Rochefort and L'Orient. When the army arrived in France, it was to be at liberty to serve again immediately, and the property of the French was to be sacred and untouched. It might either be carried off into France, or sold in Portugal. By the seventh article of the preliminary treaty, it had been even stipulated, that the Russian fleet should be allowed either to remain unmolested in the Tagus, or to return home. But this was indignantly refused by Sir Charles Cotton, our admiral off the Tagus, who obtained the surrender of the Russian ships, on condition of their being restored by his Britannic majesty, in the event of a treaty being concluded with Russia, and of Admiral Siniavian and his crews being conveyed to their own shores by our ships.

Convention of Cintra.

The general regret and indignation of the country at this convention of Cintra, was expressed in petitions to the throne, for an inquiry into the whole transaction. An inquiry was set on foot. The report of the military board stated, in defence of the convention, that, from the want of cavalry in the British army, it was not possible to have followed up the victory of Vimeira by an immediate and fresh blow. When the suspension of arms was agreed upon, the army under the command of Sir John Moore had not arrived, and doubts were entertained whether so large a body of men could be landed on an open and dangerous beach. The landing was indeed accomplished, but it was still doubtful whether they could be supplied with provisions from their ships, on a coast so impracticable. The convention, it was added in the report, released 4000 Spanish soldiers, and also 2000 Portuguese. The enemy, if driven to extremity, might have been joined by 6000 Russians. They were masters of the Tagus and of the strong fort of Alentejo, and might have detained our army during the remainder of the year. Our army was immediately left at liberty to march into the heart of Spain by a direct route, while the enemy, who were liberated by the convention, took a circuitous route by sea. From this approbation of the convention, however, Lord Moira made a spirited dissent, with reasons which sufficiently overpowered the fallacious arguments which have been stated. And in spite of the favourable report of the board, his majesty signified his disapprobation of the terms.

Bonaparte concealed the necessity which obliged him to recal his troops from the Oder to the Elbe, by making the withdrawing of them appear an act of favour to the Prussians, at the intercession of Russia. Having met the Emperor Alexander with a splendid ostentation of friendship at Erfurth, he strengthened the ascendency which he had gained over that monarch by the conferences at Tilsit, and he induced him to join him in an offer of peace to the British. As the Spaniards were denominated insurgents in the first reply which he made to the proposition of admitting the government of that country to an independent share in the negotiation, his Britannic majesty closed the negotiation, by a dignified declaration that neither the honour of his majesty, nor the generosity of the British nation, would allow them to abandon a brave and loyal people, whose exertions in a cause so unquestionably just his majesty had pledged himself to maintain.

While the army of France lay inactive on the Ebro and the passes into Biscay, and while Napoleon was employed in averting danger on the side of Russia and Germany, the provincial juntas had leisure to resolve themselves into one supreme and central body. The meeting of this assembly was an imposing spectacle, but it was nothing more. Morla was but one of many traitors, who had a principal influence on all its proceedings. Jealous of their generals, they gave them no power, but kept them at the head of separate armies, each independent of the other. They misled themselves, and deceived the people into a fatal security, by pompous proclamations, and absolute falsehoods as to the state of the national resources. They took no pains to recruit the armies with arms and clothing. In short, during the interval that the French were weak, they did nothing either to overpower them before they were reinforced, or to meet them with equal numbers. The whole army of the patriots now, including the army of Romana, and the regiments delivered from the hulks of Junot, were divided into three wings. The eastern, commanded by Don Joseph Palafox; the north-western by General Blake; the central by Castanos. The army of Castanos and Palafox, mustering 11,000 men, while the junta proclaimed that it was 70,000 strong, is described by a British officer,* who saw it, as a mob of miserable peasants, without organization, and with few officers that deserved the name. The general and principal officers had no confidence in the men, nor the men in themselves. The army of Blake, even after the accession of Romana's corps of 8000, could not amount to 17,000 when it fought the French: it also was lamentably deficient in officers, food, and clothing, and in every species of warlike equipment.†

Bonaparte having ordered a levy of 160,000 conscripts, set troops in motion for Spain, and followed them from Paris, without waiting to hear the last reply of the British to his proposals for a negotiation. On the 12th of November he joined his brother Joseph with a reinforcement of 12,000 men. Agreeably to the plan of the campaign chalked out by the junta, Castanos crossed the Ebro at three points, and suffering himself to be decoyed by the French, pushed on as far as Pampeluna. When it was seen that he had completely fallen into the snare, Marshal Ney crossed the Ebro, routed the Spanish divisions at Logrono and Colabora, and completely separated him from communication with Blake. In a series of actions from the end of October, General Blake's army was driven from post to post as far as Espinosa. There they made a stand; but were obliged to recommence their retreat. During the conflict at Espinosa, a French detachment was sent against the last retreat of the Gallicians at Reynosa. The patriots were routed and dispersed. Blake, with his shattered remains, took refuge in Asturias. What remained of the corps of Romana, which had formed part of the Gallician army, fled first to St Andero, and afterwards to Asturias. Marshal Soult pursued them closely, and entered St Andero. In the mean time, the Estremaduran army, under the command of the young Count Belvedere, was decoyed like Castanos's to pass the Ebro. Advancing rashly to Burgos, they were there almost annihilated. The enemy having thus destroyed the two armies of the north and of Estremadura, fell upon Castanos at Tudela, and defeated him in an engagement, which fixed the fate of the campaign. The battle of Burgos had broken the centre of the enemy; the battle of Espinosa the right; that of Tudela crushed their force upon the left; and the road to Madrid was laid open. Before these fatal dispersions, Sir John Moore had commenced his march from Portugal to support the Spanish armies. Gallicia, or the borders of Leon, were fixed upon by our war minister as the place for assembling our troops; and it was communicated to General Moore, that 15,000 men had been ordered to sail for Corunna. For the junction of these with his own forces, he was directed to send such orders as he should think proper to Sir David Baird, who commanded them. A distressing dilemma presented itself at the outset of Sir John Moore's army on their march. Of the two great roads through Portugal into Spain, viz. the northerly road to Almeida, or the great eastern road to Elvas, it was found that the latter was through a country which would not furnish sustenance to the army; and the former was too mountainous to admit the carriage of artillery.‡ It was therefore necessary to divide the army. Six thousand men were entrusted to General Hope, who marched by the Elvas or Madrid road: The rest moved by Coimbra, Abrantes, and Almeida. The Spanish government had recommended Burgos as the point of union for the British troops; and Madrid and Valladolid were the places appointed for magazines. It was communicated by government to General Moore, through Lord William Bentinck, that he would find between 60,000 and 70,000 men assembled under Blake and Romana in the Asturias and Gallicia; independent of Castanos's force on the front and left flank of the enemy. A more complete reverse of every thing which the imagination of Englishmen had painted of Spanish affairs could not be found, than in the real state of Spain.

The Spanish armies are defeated in every quarter.

Sir John Moore marches into Spain.

In his progress, Sir John Moore found the constituted authorities reluctant to afford him support: a reluctance which continued, either from treachery or sluggishness, throughout the whole of his campaign. To increase his embarrassments, Lord Castlereagh, after dispatching an inadequate supply of money, wrote to the general, that silver was not to be found in England, and that he must expect no more for some months. Before he arrived at Salamanca, he learned, that the Spaniards had been defeated at Burgos. At Salamanca, he learned that the French had advanced to Valladolid, within twenty leagues of him. Thus, instead of finding, as he had been taught to expect, his entry into Spain covered by 60,000 Spaniards, he found the enemy within three marches of him, and not a Spanish picquet in his front. He saw, also, that the advance of the French had produced no sensation in the country. The people were all tranquil, and employed about their ordinary occupations, knowing and caring little about public matters. Four days after his coming to Salamanca, the British general received the news of Blake's total defeat, in a letter from Mr Stuart, our resident at Madrid, who described the imbecility of the Spanish junta, and justly inferred from it, that there was room for the most desponding views. The accounts of the other armies already stated, prepared him to hear of the most disastrous events.

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* Captain Whittingham, in his letter to Lord William Bentinck.

† From Captain Carrol's dispatches, quoted in the Narrative of Sir John Moore's Campaign.

‡ This was found to be an error, occasioned by the ignorance of the Portuguese respecting the state of their own country.

Sir David Baird arrives at Corunna.

In the mean time, Sir David Baird had arrived at Corunna (October 13.) In his march from that place, an alarm, communicated to him by Blake, that the French were penetrating by Rio Seco, made him prepare to retreat back to Corunna; but the alarm was discovered by Sir John Moore to be false, and he received orders to continue his advance. Every day, however, brought intelligence of new disasters, and more clearly disclosed the dangers of the British army in front.

Mr Frere urges Sir John Moore to advance to Madrid.

Yet was it, at this time, that General Moore received from Mr Frere, our ambassador at Madrid, the most pressing solicitations to advance, and push forward to the Spanish capital under any circumstances. This was also the opinion of the traitor Morla, who recommended that he should hasten with a part of his army, if he could not bring forward the whole of it. But the intelligence of Castanos' defeat, and the utter dispersion of all Spanish force in the north, made it doubtful whether he might be able to effect a junction with either Sir David Baird, or with General Hope, who commanded that division of his army which had come from Portugal by a different route, and which had not yet joined him. Even the united army was totally inadequate to meet the French. The general therefore determined to retreat deliberately to Portugal; to order Sir David Baird back to Corunna; and to join General Hope.

A large reinforcement of more than 30,000 French were, to Sir John Moore's certain knowledge, on their march through Biscay, which, independent of other sources of reinforcement, could be instantly augmented from the victorious army which had routed Castanos at Tudela. The whole force destined to act under General Moore, did not exceed 28,000, now divided into three bodies, whose rejunction was endangered by the advance of the main body, and whose continued strength, even after a junction, was utterly unfit to turn the scale against at least an hundred and fifty thousand disciplined French, driving the remnants of Spanish armies before them. Mr Frere, however, had arrived at Madrid with fresh instructions from the British cabinet. He was not empowered, it is true, to dictate orders to Sir John Moore; but the general was directed by the British minister to receive requisitions or representations from Mr Frere, or from the Spanish government, upon all occasions, with the utmost deference and respect: if a Spanish commander in chief was appointed, Sir John Moore was to obey him *implicitly*. Already Sir John Moore had discovered what was to be expected from Spanish co-operation. He knew that there was no Spanish army to support him, only Romana, who was assembling the fugitives of Blake's army in Leon. He had distinctly stated, nearly a month before, that four times his force would be numbered and beaten, unless the mass of the Spanish people could resist the enemy themselves. He saw that there was no energy in their government; and whatever accounts had reached England of the general enthusiasm of the nation, he saw no appearance of it in the provinces which were now to be the scene of action.

Mr Frere, however, had brought from England those exaggerated ideas of Spanish armies and Spanish success, which the false statements of the juntas had first inspired. He described the delays and difficulties likely to attend the reinforcements of the French; he informed Sir John Moore of a Spanish army 20,000 strong in New Castile, on which Castanos was falling back; he exhorted him to advance to Madrid; and added, this step, he was convinced, would be approved of by the British government; whilst he ventured even to menace the general with the indignation of his country and government, if he refused to adopt his frantic scheme of *devoting* the British army to the defence of Madrid. A second communication reached the general, together with two Spanish generals, whom the junta had sent to exhort him to march to Madrid. They declared, that the Spanish general St Juan had fortified the passes to Madrid against the French, with 20,000 men. General Graham, however, arrived with intelligence that St Juan's corps had been utterly routed. General Moore still persevered in his resolution to retreat, until the 5th of December, when the strong representations of the junta; the resolution which he was told the people of Madrid had adopted of defending the capital to the last; the reported weakness of the French; and the duty which he conceived his country exacted from him, of rather hazarding considerable danger, than saving his army by retreat, induced him to change his resolution. In the mean time Madrid surrendered, but it did not shake the purpose of the British commander to attempt a diversion which might favour the rallying of the discomfited Spanish armies. Having been joined by General Hope, he continued to take measures from the 5th to the 14th of December, for collecting his whole force at Valladolid for the purpose of effecting a diversion in favour of the southern patriots. He would thus have General Baird in his rear. But his troops had only proceeded a single march, when it was known that Bonaparte was advancing towards Lisbon, on the natural supposition that the British would retreat from Salamanca, and that Soult was at Saldanna with a corps of 18,000 men. The general instantly perceived an opening, of which advantage might be taken. With a view to attack Soult before he should be reinforced, he moved, not to Valladolid, but to the left, and joining General Baird, advanced rapidly to the Carrion. An affair between the advanced posts of the two armies, gave marks of the superior valour of the British cavalry, but the attack of the main body was suspended; for it was learnt that Bonaparte was recalling his troops from the road to Portugal; had left Madrid in person, with 40,000 men, to throw himself in the rear of the British; and that Soult, whose position gave him a choice of retreating, as well as a power of taking our army in flank, had been strongly reinforced. There was not a moment to be lost. Soult's army alone was superior to the British. Junot, with another corps, threatened their right flank. Bonaparte pushed on so rapidly, that the advanced guard of his cavalry passed through Tordesillas the same day that the van of the British left Sahagun. Both French and British were moving to the same point, Benevente, which was distant from the English about 40, and from the French about 60 miles. In fine, the whole disposable force of the French army, forming an irregular crescent, was moving with rapid steps to surround the British. Bonaparte's cavalry, and part of his artillery, actually came up with the rear of the British at Benevente, but were repulsed by the skill and gallantry of Lord Paget. Bonaparte, however, although disappointed in overtaking our army at Benevente, was confident that Soult would reach Astorga in sufficient time to cut off their retreat. In this attempt Soult also was foiled, by the able dispositions of the British general, who drew off his whole forces before the enemy could come up with him. General Moore had at first entertained hopes of being able to make a stand in Gallicia. Whether such a stand could have been of avail had the Spaniards given us support, is doubtful; but their total apathy left no room for the experiment. The delay of a day's march would have enabled the enemy to surround our army. Had General Moore halted at Astorga, the retreat to Corunna would have been cut off. Bonaparte formed a junction at Astorga with the army of Soult; and finding, by the retreat of the British from thence, that they could not be surrounded, he detached a large force to harass and pursue them. Three Marshals of France, with as many divisions, were commanded to follow them. Although the enemy had hitherto been frustrated in his view of surrounding the British army, yet a multitude of severe distresses were accumulating on their retreat. The weather was severe, and provisions were scanty and irregularly supplied. The inhabitants of Spain gave no aid to their persevering allies, and made no attempt to annoy or retard the enemy. Instead of this, they fled from their houses, barring their doors, and carrying off cattle, provisions, and forage; every thing that could be useful to the British, or lessen their distresses. It is a melancholy truth, which must be added, that the conduct of the British soldiers, in every thing except courage, was unworthy of their cause and character during the greater part of the retreat, and was such as to draw censure from their commander.

On arriving at Lugo, the general was anxious to make a stand; and though the force which hung on his rear was considerably superior, he wished to engage it there rather than nearer the place of his embarkation. On the 7th of January 1809, he observed the French force accumulating on his left wing, and repaired thither in person, where General Leith's brigade was skirmishing with the enemy. He came to the front of the 52d regiment, in which he had early in life carried the colours. The sight and the voice of their general so animated the men, that they rushed forward with charged bayonets, and drove back a column of the enemy, before whom they had been retiring, with considerable slaughter.

A month had now elapsed since the central junta had promised to Sir John Moore that 44,000 Spanish soldiers should be united to his army: this engagement they had apparently stampt with complete validity, by deputing a number of the junta to communicate it. Mr Frere had given authority to this mission, by deputing Charles Stuart, Esq. the diplomatic agent, to introduce the Spanish deputy, and to present his letter from Truxillo. The month was elapsed, and not a Spanish soldier had been seen; not an effort had been made to attack the French posts when weakened by the pursuit of the whole disposable force of France after Sir John Moore.

Sir John Moore offers battle to the French.

Early in the morning of the 8th of January, the British army was marshalled in array at Lugo, and offered battle to the enemy. But Marshal Soult did not stir from his post; he had experienced sufficiently the talents of the general, and the intrepidity of the troops whom he had to engage. On the other hand, the British commander perceived that it would be equally imprudent for him to attack the stronger position of the French, or to remain longer in his own. Reinforcements were pouring in on the enemy—the country had no sustenance for our troops, and to stop was inevitably to have been surrounded by an enemy of quadruple force. On the night of the same day in which they had offered battle at Lugo, a retreat was ordered.

He arrives at Corunna.

On the 11th of January the British reached Corunna, pursued by 70,000 Frenchmen, under the command of Bonaparte, who had a great superiority in cavalry; and in daily contact with the enemy, the army had traversed 250 miles of mountainous country, without being either beaten in their rear-guard, or thrown into confusion, or losing a single standard.†

Battle of Corunna.

The position of the heights farthest from Corunna, but most important for its defence, was necessarily abandoned to the enemy, from the small force of our numbers, being insufficient to cover so large an extent of ground, and a second range, of much inferior advantage, was occupied. On the 16th, the British army were drawn up in order of battle, to receive the enemy, who commenced a destructive cannonade from eleven guns planted on the heights, and five strong columns were seen advancing to attack the British. As the position of the right wing of the British was unavoidably bad, and the enemy were threatening it with their most formidable attack, Sir John Moore placed himself where his presence was most needed to animate, and his skill to direct. It was soon perceived that the French extended beyond the right flank of the British, and that their object was to turn it. In order to prevent them, half of the 4th regiment, which formed this flank, were ordered to fall back, to refuse their right, and thus make an obtuse angle with the other half. This manœuvre impeded the enemy by a flanking fire. Sir John Moore, observing his success, called out that was exactly what he wanted to be done. The general then rode up to the 52d regiment, which got over an inclosure in their front, and charged the enemy most gallantly. He exclaimed, "Well done, my 52d!" and then proceeded to the 42d, addressing them in these words, "Highlanders, remember Egypt!" The Highlanders rushed on, driving the French before them. As Captain Hardinge, who had returned from ordering up a battalion of the Guards to the left flank of the Highlanders, was speaking with the commander, a cannon ball struck the left shoulder of Sir John Moore, and beat him to the ground. So composed and unaltered was his countenance; so intently and earnestly was it fixed upon the advancing Highlanders, that for a few moments it was hoped he was only stunned by the shot; but it was soon discovered that he was mortally wounded, and he was carried from the field of battle. ‡

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† Narrative of General Moore's Campaign, page 336.

Death of Sir John Moore.

The attack of the French, upon the right of our army, was completely repulsed; and, in their turn, the French were obliged to draw back their left flank for fear it should be turned. They then attempted the British centre and left in succession; but the centre was successively defended by artillery, and the left by its strength of situation. At five in the evening, when the light began to fail, the enemy had been repulsed in every attack. When the disparity of numbers is considered, the honour which this victory reflects on the British arms must be highly appreciated. The number of Sir John Moore's army did not exceed 15,000 (for a whole division, under General Crawford, had separated and proceeded to Vigo.) The French were stronger in numbers by 10,000 men. They had marched, it is true, as far as our army; but from the superior state of their commissariat, had suffered much less in the march. Their loss was supposed to amount to 2000 in killed or wounded; that of the British was between 700 and 800.

Proceedings in parliament.

When the session of parliament was opened, on the 19th of January 1809, it appeared, by a recommendation in the royal speech to augment the regular army, that the design of foreign expeditions was not abandoned by ministers. The disgraceful convention of Cintra, and the ministerial conduct of the war in Spain, formed the first subjects of debate. Motions of thanks were carried to the commander Sir Arthur Wellesley, and to the officers and privates who had won the battle of Vimeira. The same thanks were voted to the victors of Corunna; and both parties in the house were emulous to express their zeal in decreeing a monument of public gratitude to the lamented Sir John Moore.

To this discussion succeeded one of very considerable interest and importance, in regard to the abuse of power at home; the person chiefly implicated being no less than a prince of the blood, his Royal Highness the Duke of York, in his capacity of commander in chief. The circumstances which led to the investigation, originated in a way not very creditable to any of the parties concerned. A discarded mistress of his Royal Highness, (Mrs Mary Ann Clarke,) conceiving she had reason to complain of the non-fulfilment of pecuniary engagements, became the willing instrument of a Col. Wardle, in disclosing corrupt and improper influence respecting the disposal of military commissions and offices during the time of her connection with his Royal Highness. The rank of the person implicated, and the pretended extent of the abuses, created an uncommon degree of interest throughout the nation; and the House of Commons, for many weeks, pursued the investigation with much perseverance and zeal. Col. Wardle, and the leading members of the opposition, supported the charges against the Duke, while Mr Percival, and the principal members of administration, endeavoured to exculpate or palliate his conduct. Much evidence was brought forward on both sides; and the result, although, considering the conduct and motives of the parties which were disclosed, it did not, in the opinion of the house, lead to criminate the Duke, as regards a direct knowledge or participation of pecuniary advantages, or intentional corruption, yet established sufficient evidence of improper conduct, and produced three separate propositions for an address to the throne. The proposition adopted by a majority of 334 to 135, was brought forward by the Chancellor of the Exchequer, and stated the regret of the house, that his Royal Highness should have formed so immoral a connection, and a hope that he would, in future, imitate the bright example of virtue held out by his royal father. This proposition was adopted on the 17th of March, and, on the 20th, the Chancellor of the Exchequer communicated to the house, that his Royal Highness the Duke of York had made a voluntary resignation of his command, which had been accepted by his majesty.

The subject of reform was brought forward by Mr Curwen in the month of May, who moved for leave to bring in a bill for securing the independence and purity of parliament, by preventing the obtaining seats by improper means, and also to extend the laws respecting bribery. Leave to bring in the bill was unanimously granted. Mr Curwen proposed to attach the severest penalties to the purchase and sale of seats, and superadding the oath of the representative, with respect to the mode of his introduction into parliament, accompanied by the usual guards against perjury. While the ministerial antagonists of reform, struck by the irresistible power of facts, which this motion elicited and weakened by many concessions which they had themselves made, both as to the existence of venality, and the necessity for putting some check to it, succeeded in breaking the force of the bill by amendments. An open and unqualified opponent of reform, Mr Windham, resisted the motion, not on its peculiar features or enactments, but upon its whole scope, essence, and principles.

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‡ As Sir John had repeatedly declared his wish, to a particular friend, to be buried where he had fallen, if it should be his lot to be killed in battle, it was determined to bury his body on the rampart of the citadel of Corunna. Accordingly, at eight o'clock in the morning, he was deposited uncoffined. The body was never undressed, but wrapt up by the officers of his staff in a military cloak and blankets. Towards eight o'clock, next morning, some firing was heard. It was then resolved to finish the interment, lest a serious attack should be made, on which the officers would be ordered away, and not suffered to pay the last duties to their general. Some months afterwards, when the Spaniards again got possession of Corunna, the Marquis of Romana ordered the body to be taken up and properly interred in the citadel; and over the tomb a short and simple inscription was engraven.

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The measure, Mr Windham averred, was ill timed, injudicious, founded upon false facts, false views, and false assumptions, calculated to produce no good in the first instance, and liable and likely to lead to the most serious mischiefs in future. The House of Commons, he contended, was adequate to all the purposes of its institution; the constitution was already good; and, as there was no temptation to change its structure, so there was positive risk in trying the unknown results of visionary experiments. "To prevent the sale of seats in parliament, you must take away the influence of property, and make it penal, for any one to have the power of nominating a member. So long as there are persons in a situation to say, I can make an offer of a seat in parliament, so long will there be persons to treat with for that object, and so long will means be found for committing, in some way or other, the influence so possessed, on considerations valuable to the possessor." According to Mr Windham's argument, it is equally futile, even equally unfair, to prevent the buying of seats from a multitude, as from an individual. The influence of property cannot be got rid of. The just, wholesome, and legitimate use of property, he might be told, was a totally different thing from the sale of seats. But we are now arguing (said he) upon principle, which, by its nature, unites things different in forms, but which are ultimately the same in substance, and does not found distinctions on accidental varieties. The influence of property is the same, whether it actually sold a seat in parliament, or gave the individual a seat to sell. The influence of property might be strained and refined, so as to retain little or nothing of its primary character, just as a certain physical impulse of our nature is refined from its original grossness into all that is delicate and sentimental,—it may branch into acts of beneficence, it becomes only the power and opportunity of virtue. But is this (he continued,) the only way in which property exerts its powers? Is it always taken in this finer form of the extract or essence? Is it never exhibited in the substance? It is here that the comparison will begin, and that the question will be asked; while the advocates of reform, who do not mean to extend it to the abolition of all influence of property, will do well to be prepared to answer, How, if the sale of a seat, or any commutation of services connected with such an object, be gross corruption, can we tolerate the influence which property gives, in biassing the minds of those who are to give their votes? How are they to suffer a landlord, for instance, to have any more influence over his own tenants, than over those of another man? How will they suffer a large manufacturer, to be able to bring to the poll more of his own workmen, than of those employed in the service of his neighbour? How will they prevent an opulent man, of any description, spending his fortune in a borough town, from being able to talk of his influence among the smaller tradesmen; or be at liberty to hint to his baker, or his butcher, that, laying out every week such a sum with them as he does, he expects that they should oblige him by giving a vote to his friend Mr Such-a-one, at the next election? "If all this," said Mr Windham, "is not corrupt, on the principles of reformers, I know not what is. What has money, spent with tradesmen, or work given to manufacturers, or farms let to tenants, to do with the independent exercise of their right, and the conscious discharge of their duty in the election of a member, to serve them in parliament? A fine idea truly, that their decision, in the choice of a representative, is to be influenced by the consideration of what is best for their separate and private interest; or, that persons, the advocates of purity, and who will hear of nothing but strict principle, should attempt to distinguish between the influence which engages a man's vote by the offer of a sum of money, and that which forbids the refusal of it, under the penalty of loss of custom, or loss of work, or of the possession of that, on which his wife and family must depend for their bread. I shall be curious to hear in what manner, not the advocates of this bill, but the advocates for the principles on which this bill is enforced, will defend themselves against these questions, and be able to shew, that, while it is gross corruption, gross moral depravity in any one who possesses such influence, to connect his own interest with the use of it, even though he should not use it improperly, it is perfectly innocent to create that influence by the means just described. Or, on the other hand, if such means are not lawful, how the influence of property is to continue such as it has at all times subsisted in practice, and been at all times considered as lawfully subsisting, it is indifferent to me which side of the alternative they take; but let them be well aware, that such is the alternative to which they will be reduced, and that if they contend generally, as it is now done, that such and such things are corrupt, because they admit the consideration of interest, in matters which ought to be exclusively decided on principles of duty, it is in vain for them to contend hereafter, that any man has a right to influence his tenants, or tradesmen, or workmen, by any other means at least than those by which he may influence the tenants, tradesmen, or workmen of any other person, that is to say, by his talents, or by his virtues, by the services which he may have done, and the gratitude he may have inspired.

Mr Windham's speech against reform.

When I look therefore to the moral qualities of these acts as independent of, and antecedent to, positive law, I am at a loss to find what it is, either on the score of principle or of authority, that determines them to be corrupt, or that enables us, if they are corrupt, to exempt from the same sentence of corruption, nine-tenths of the influence which has hitherto been supposed to be attached, and legitimately attached, to property; and which, for aught that at present appears, there is no intention of taking away."

This brilliant display of Mr Windham's principles, on the subject of representation, well merits notice, even in a summary view of British politics. However displeasing it may be to see venality defended on principle, yet the open manner is wholly respectable. In this eloquent passage, Mr Windham does not distract us with detail; he troubles us with no cant, no declamation, no evasion. He meets us on the ground of principle, unlike in every respect to those half conceding temporizing amenders, who frittered and pared away the bill of Mr Curwen, till it became, what a member in the house, with most rational ridicule, proposed to call it, "An act for the better securing the power of the crown in the Commons House of Parliament, by vesting in the lords commissioners of his majesty's treasury the monopoly of seats in the said house." Of Mr Windham's arguments, it may be fairly said, that they prove too much. If the influence of property be the fair source of representation, what a paradox and contradiction is our constitution, which retains even obsolete laws against bribery? If such a principle be adopted, what security shall we have if seats in parliament should be advertized in the papers for sale; if auction rooms were established for every office in the state? The argument of Mr Windham, if admitted, would prove, that no enactments, no safeguards against bribery, are to be admitted. The case may be argued on two grounds,—*principle* and effect, theory and practice. Now, every thing that can be called principle in the constitution,—every feeling that can be called principle in the human mind,—the law itself is at variance with direct bribery to the individual voter. But it is certainly the drift of Mr Windham's argument, because indirect, that bribery, when couched under the influence of property, can neither be wholly detected nor punished, without incurring greater evils than those which are proposed to be remedied, and that no attempt to remedy the evil should be made. It is a sufficient answer to this, that the most perfect system of representation, must tolerate a degree of indirect bribery, because it cannot interfere with actions that are not tangible or direct. The law cannot reach to tacit understandings between the landlord and his farmer, however probable it may be that the vote of the latter at an election is influenced by their mutual relation. But the law does not sanction this understanding; it only abstains from prosecuting what it cannot affect to remedy. But this does not prove that it should not interpose when cases are flagrant, when they overtop suspicion, and rise to clear proof. In cases of paternal authority, the law does not pretend to remedy many evils which arise from its exertion. There may be harsh fathers, and miserable children, whose cases can never come within its reach; but when the cruelty rises to a certain pitch, the abuse of that authority, like the abuse of the influence of property, is justly amenable to trial and punishment. The argument of Mr Windham is then a mere sophism, setting out on the assumption, that the principle which is to guide us in practical politics, is not that thing which distinguishes actions, but which assimilates them. This is metaphysical quibbling on the word *principle*. There is much utility to be sure, for the purpose of legal arrangement, in classing actions by their features of similarity; but when actions are to be punished or prevented, distinctions are sacredly necessary. In apportioning the punishment due to bloodshed itself, the law makes distinctions between murder and manslaughter, which, according to Mr Windham's reasoning, could never apply. The line of distinction, it is true, between the lawful and unlawful influence of property, can no more be drawn with infallible certainty, than the line of distinction between the lawful and unlawful use of the right of self defence, or between murder and manslaughter. The influence of property will always operate at elections in three ways. By the respectability which property gives to the richer candidate. That may be an innocent and even wholesome influence. It will operate also by the dependence of many of the voters for their wages or custom on the candidate or his friends. But this argument against reform is more formidable in appearance than in reality. If the laws against influence of this latter kind were enforced with vigilance in cases of notorious and open exertions, the candidate would be taught caution in holding out either threats or promises to voters; and the great mass of that part of society, whom a moderate reform would introduce as voters, are, in the present times, by no means so dependent on landlords or great masters of manufactures, as the enemies of reform hold out.

Examination of Mr Windham's doctrines.

The practical evils resulting from the present system of representation are, 1st, That certain boroughs are entirely, necessarily, and perpetually at the disposal of certain families, so as to be considered as a part of their rightful property; and, 2d, That certain other boroughs are held and managed by corrupt agents and jobbers, for the express purpose of being sold for a price in ready money, either through the intervention of the treasury, or directly to the candidate. The latter use is certainly the great and crying evil. The boroughs, containing a few hundred voters, are so notoriously venal, as to have received the name of *rotten* and sometimes *treasury boroughs*, though the opposition and individuals sometimes buy them. The agent, who is generally an attorney settled in the place, obtains a complete local knowledge of the circumstances of the electors, and of the bribes, whether pecuniary, or in the shape of providing situations for the relations of such electors as are best calculated to secure a majority for any member whom it may be his interest to get appointed. He receives from the minister a sum of perhaps several thousand pounds, to secure the nomination of the intended member. The minister gets the sum from the candidate, which goes in the first instance to the procurer of the seat, and a part of it is by him spent in direct bribery, and other expences of election, and the surplus retained as the procurer's reward. Those electors who do not receive a bribe in money, are promised little offices for themselves or relatives in the excise, church, army, or navy. The ministers thus obtain a seat for their own creature; the electors gain either cash or provisionary benefits; the constitution and the country are the only sufferers. Against the remedying of such abuses, the cry of innovation has been raised. The truth is, that these traffickings are amongst the most recent innovations of the constitution. The transference of the right of election from such places as have a few, and consequently a more corruptible body of electors, would only bring back the representation to

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that state in which it anciently was, before these boroughs had been partially depopulated. Mr Curwen, from some inscrutable view of the subject, consented to let the bill pass, amended by ministers, or rather annihilated as to every object which he had proposed in framing it.

The chancellor of the exchequer stated the loan necessary for making up the ways and means of the year 1809, at fourteen millions six hundred thousand pounds. The whole expenditure of the year had amounted to seventy-one millions, nine hundred and eighty-nine thousand pounds, being an increase of seven millions four hundred thousand pounds from the expenditure of the last year.

We now come to the warlike operations of the year.

In the West Indies, the success of the British arms was complete wherever they were directed. The island of Martinique was reduced in 27 days, from the departure of the expedition which sailed against it from Barbadoes. The principal place in the island which the enemy attempted to defend, was Mount Sourrier, which guarded the access to Fort Bourbon. The enemy repeatedly charged our troops; but here, as in every action where the bayonet has been employed, the superiority of the British soldier was conspicuous. The French were entrenched on the heights, and were protected by light artillery. From this strong position they were driven; and Fort Bourbon being laid open to our attack, the whole island surrendered.

In the beginning of July, General Carmichael sailed from Jamaica for the purpose of co-operating with the Spaniards in the reduction of the city of St Domingo. At first the French General Barquier, who commanded the city, refused to surrender; but when General Carmichael made judicious and decisive preparations to carry the plan by assault, the governor thought proper to capitulate.

The navy of France, unable to cope with ours in open sea, was gallantly attacked by Lord Cochrane in its own harbours. A French fleet of eight sail of the line had been blocked up in Brest harbour by Admiral Lord Gambier; but in the beginning of February, had made their escape to Basque Roads, where they were joined by four sail of the line. Here the task of attempting to destroy them, was committed to Lord Cochrane. He sailed from England in the Imperieuse, and Lord Gambier received orders to employ him in attacking the enemy's fleet with fireships. On the 10th of April, a number of fire vessels, and of transports, filled with Congreve's rockets, joined Lord Gambier's fleet. The filling of the chief explosion ship was committed to Lord Cochrane. He caused puncheons, placed with the ends upwards, to be filled with fifteen hundred barrels of gun-powder. On the tops of the puncheons nearly 400 shells, with fusees, were placed, and, in the intermediate spaces, about 3000 hand grenades. The puncheons were fastened together by cables, and kept steady and immoveable, by wedges and sand rammed between them. In this dreadful ship, Lord Cochrane, with one Lieutenant and four seamen, committed himself. On the evening of the eleventh of April, the fireships and the explosion ship proceeded with a strong northerly wind and a flood tide. When they approached the enemy, a boom was perceived, stretched across in front of the French, in order to protect their line. This was quickly broken, and the English advanced under a heavy fire from the forts in the island of Aix.

The French fleet, dismayed and thrown into confusion, attempted to avoid destruction by cutting their cables and running on shore. Lord Cochrane approached with his explosion ships as near the enemy as possible, and perceiving that they had taken the alarm, set fire to the fusee, and betook himself with his companions to the boat. They were not able, however, to get out of the reach of danger, before the fusee exploded. Instead of having fifteen minutes, the time on which they had calculated to escape from the exploding ship, they had not left the vessel more than nine minutes before she blew up. The lieutenant, who accompanied Lord Cochrane, expired through fatigue, and two of the sailors were so nearly exhausted, that their lives were for some time despaired of. Immediately on joining his ship, Lord Cochrane proceeded to attack the French vessels that were thrown on shore, and for some time sustained their fire alone, before any other man of war entered the harbour. He made a signal to Lord Gambier that seven of the enemy's ships were on shore, and might be destroyed; but the admiral, after giving orders to moor and weigh, was obliged to anchor again, before he reached the Aix Roads, on account of the wind and tide being against him. Six of the enemy's ships, in the mean time, escaped up the river Charente; four of the remaining ships were attacked by Lord Cochrane, in the Imperieuse, followed by three other 74's. The result of a brilliant action, which he supported against the united ships and batteries of the enemy, was, that one of their ships of 120 guns, five of 74, and two frigates were driven on shore, and either destroyed or rendered useless. One of 80, two of 74, and one of 50 guns, and three frigates, were burnt by our own or by the enemy's crews.

Lord Cochrane destroys the greater part of the French fleet.

Since the peace of Tilsit, Austria had been loaded with new injuries from France, the detail of which is foreign to our history. But still, amidst threats and injuries, her government had not been idle during the favourable moment when the presence of Napoleon was required in Spain. In the spring of 1809, the Archduke Charles put himself at the head of the whole imperial army, with more extensive power than had been enjoyed by any commander since the days of Tilly and Wallenstein. On the 10th of April, the van of the Austrians crossed the Inn, and advanced into Bavaria. When information of this had reached Paris by telegraph, Bonaparte left his capital, and repaired to his head quarters at Ingolstadt. After some partial actions, which proved disastrous to the Austrians, the French emperor, discerning that the division of the Archduke Louis had imprudently separated from the main army, made a furious attack upon the Austrians at Ebensberg, and put them to the route, with the loss of 18,000 prisoners. From thence he pushed on to Landshut, and, putting the fugitives to a second route, took 9000 more prisoners. The Archduke Charles having, in the mean time, in conjunction with the Bo-

An Austrian army under the Archduke Charles marches into Bavaria,

and is defeated by the French.

[illegible] Aspern, and could with difficulty maintain themselves in the village of [illegible]. By keeping that village, [illegible] the island of Lobau, [illegible] in the night between the 22d and 23d. Their loss [illegible] less than 30,000 men. That of the Austrians was acknowledged to be 20,000. Yet, though the victory on the side of the Archduke [illegible], and though he took ten times more prisoners than he lost, it marks [illegible] skilful retreat in the only pitched battle in which Bonaparte ever was beat, that he lost only 3 pieces of cannon. From the day of the battle of Aspern, to the sixth of July, the grand armies continued in [illegible] within a few hundred yards of each other; the French still possessing the island of Inder-[illegible] the left shore of the river, strengthening [illegible] their bridges, and waiting for fresh [illegible]. The Austrians also received im-[illegible] although their whole force [illegible]. The emperor Alexander, [illegible] with his ally Napoleon, [illegible] into Poland; and to meet the [illegible] of the Archduke's army [illegible]. The Archduke John [illegible] Italy; but he was too [illegible] before the fatal day of [illegible]. The Austrians entrenched themselves in [illegible], and unhappily neglected the [illegible] their left flank. It [illegible] accordingly that Bonaparte direct-[illegible]. To oppose his movements, the Arch-[illegible] his flanks, and weakened his centre. [illegible] marked his fault, penetra-[illegible] part of his army, and drove it from [illegible] Wagram. The Austrian wings were [illegible] confusion, and the whole army re-[illegible] after an immense loss, towards Moravia. They were closely pursued by the French, and [illegible] at Znaim, where another battle took place, but it was shortly terminated, by the con-[illegible] of an armistice proposed by Francis, and [illegible] by the conqueror. Trieste, with its ter-[illegible], and the Croatian Littorale, part of [illegible] Carniola, a small part of upper Austria with Salzburgh and Berchtolsgaden, and a [illegible] in Galicia, were ceded by Austria to France, [illegible] the Rhenish League and Russia. But the most humiliating article was that which [illegible] to abandon the brave and loyal inhabitants of the Tyrol and Voralberg, who, in former [illegible] had never suffered French armies to obtain a [illegible] their territory, and, in this war, had driven them from their mountains, and pursued them as far as Ulm in Bavaria. Even when abandoned by Austria, these brave people fought with occasional success against General Le Febre and a powerful French force, till the capture and death of their leader Hofer, a man of obscure birth, and of no experience in [illegible], but who displayed a genius and energy worthy [illegible] cause,—a man, whose memory [illegible] but endeared by an execution infamous [illegible] his murderers.

In turning our view to Spanish affairs during the year 1809, we find, that after the embarkation of the British army from Corunna, the arms of the French seem to have met with no material resistance except at Saragossa. The Duke del Infantado's army [illegible] chased out of Valencia, and took the route to Gra-[illegible]da. Ferrol, before which the Duke of Dalmatia (General Soult) presented himself eleven days after the battle of Corunna, surrendered without resistance. King Joseph again made his public entry [illegible] Madrid, on the 22d of January 1809. Saragossa alone, which had before made the French fly from before its walls, made a second and most honourable defence, till the ravages of an epidemical distemper [illegible] thinned the ranks of its defenders. Palafox, [illegible] had so nobly guided the courage of the Spanish patriots, was, immediately after the surrender of the town, sent under a strong escort to France. From the time that Bonaparte left the peninsula [illegible]ize the Austrian campaign, the operations of the French grew for some time more [illegible] effective. The Spanish army of [illegible] which, about the beginning of March, was posted on the Tagus, to oppose the entrance of the French into Portugal, was obliged to leave the passage of that river open to the French, who directed their first efforts in Portugal against Oporto. The city, though defended by 24,000 men, and 200 pieces of cannon, opposed only a feeble resistance, and the enemy proceeded against Chaves. The Portuguese general Silviera, who commanded there, made a prudent retreat from it, and permitted the French to enter; but he returned with reinforcements, and retook it by surprise, together with 1500 prisoners.

In the mean time, the patriots of Gallicia, who had rested so perfectly neutral during the appearances of a British army among them, made a partial insurrection when it could be of least service, and, assisted by two British frigates, compelled the inhabitants of Vigo to surrender.

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In the beginning of April, the principal French and Spanish armies were thus situated: The Marquis de Romana, with a handful of his forces, was at Villa Franca. Cuesta having been joined by a small corps under the Duke of Albuquerque, had halted, in his retreat before the French, in Vera Cruz. General Reding, who had been several times defeated near Terragona, and who had been foiled in an attempt to surprize Barcelona, had been reinforced by some troops from General Blake, and both were employed in harassing the progress of the French in Catalonia. Marshal Soult (the Duke of Dalmatia) was at Oporto; the Duke of Elchingen (General Ney) occupied the neighbourhood of Corunna and Ferrol; and the Duke of Belluno (Marshal Victor) was advancing towards Lisbon on the north of Badajos, whilst Cuesta and Albuquerque retreated before him. After the junction of these commanders, the former thought himself sufficiently strong to give battle to the French under the Duke of Belluno, who had advanced to Medellin with 20,000 foot and 3000 cavalry. Cuesta suffered a severe defeat, and some of his regiments behaved with notorious cowardice; but other bodies of his troops were deemed to have displayed so much gallantry, and the conduct and spirit of the General appeared in such a light to his countrymen, that the Supreme Junta issued from Seville a decree appointing him captain-general of their forces, and honorary as well as pecuniary rewards to his soldiers.

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The resolution of Britain still to make common cause with the Spaniards, was expressed early in the year by a solemn treaty between the two powers. Don Pedro Cevallos (the author of the Exposition of Bonaparte's Conduct towards Spain) came to London, as ambassador from the Junta, with full powers to ratify an alliance which had hitherto received no formal ratification. His Britannic Majesty bound himself, by the treaty, not to acknowledge any other king of Spain and the Indies, than Ferdinand the VII. or his lawful successors acknowledged by the Spanish nation.

The war between France and Austria had scarcely commenced, when the ministry, who had so loudly condemned their predecessors for having failed to co-operate in the last continental campaign, determined on sending to the Continent a very powerful expedition. The Earl of Chatham was appointed to command,—a choice which was exceedingly unpopular, and cast an "*ominous conjecture on the whole success.*" The proverbial indolence of that nobleman's character was the first reproach of ministers respecting the expedition; and it was their last, though tacit, apology for its failure. But the real history of the commander's proceedings fully proved that the object of the expedition, not the hand to whom it was entrusted, was the blameable cause of disaster. The public learnt, when it was too late, that Mr Pitt, to whom the same expedition had been suggested, had seriously sounded the difficulties of it, and, after consulting the ablest military and naval authorities, men who knew and had examined the enemy's strength on the spot, had renounced it as utterly inadvisable.

Expedition to Walcheren.

Towards the end of July, this armament was assembled on the shores of England, the largest that had ever been prepared in this country. It consisted of a military force of 34,000 infantry, 2000 cavalry, and 16 companies of artillery; the whole was commanded by Lieutenant-General the Earl of Chatham; and of a naval force of 39 sail of the line, and 36 frigates, besides mortar-vessels and gun-boats, under the orders of Rear-Admiral Sir Richard Strachan. This conjoint expedition had for its object the capture or destruction of the enemy's ships either building at Antwerp or Flushing, or afloat on the Scheldt; the destruction of the arsenals and dockyards at Antwerp, Terneuse, and Flushing; the reduction of the island of Walcheren; and the rendering (if possible) the Scheldt no longer navigable for ships of war. The arrangements with respect to the debarkation of the army, were, for the most part, entrusted to Sir Home Popham: indeed, by many, it was supposed that he was the original mover of the expedition, and that the general disposition of attack had been suggested by him. The plan of the expedition was thus traced in outline before it sailed. The occupation of Walcheren was confided to Lieutenant-General Sir Eyre Coote, and the left wing of the army, consisting of 13,000 men. The naval arrangements of this division were under the immediate direction of Rear-Admiral Otway. The point of debarkation depended upon the directions of the wind, and farther operations on the state of the defences of the island; for such was the information of those who planned the expedition, that it was doubtful whether Veere, Middleburgh, and Flushing, were not places of considerable strength, each requiring a separate attack. Lieutenant-General the Marquis of Huntly, with 5000 men, was to land upon the island of Cadsand, and to maintain himself in an entrenched position, with a view to cut off the communication between the town of Flushing and the Continent. Commodore Owen was to co-operate in this part of the service. A force of 5000 men, under Lieutenant-General Grosvenor, was destined to occupy the island of Schouwen; while Lieutenant-General Sir John Hope, with the reserve of 7500, was to land, and carry the island of South Beveland, and to act as a corps of observation during the attack of Walcheren. Sir Richard Keats had the naval charge of the reserve. The remainder of the

Plan of the expedition.

army, under Lieutenant-General the Earl of Roslyn, was to remain embarked until their services should be required for the ulterior object of the expedition. The commander-in-chief, with the divisions of Sir John Hope and the Marquis of Huntly, sailed from the Downs on the morning of the 28th of July, and anchored in the evening off Walcheren. Sir Eyre Coote's division sailed a day later, and joined the head-quarters on the morning of the 30th. General Grosvenor's division, sailing from Harwich, anchored in the channel called the Roompot, (between North Beveland and Schouwen), on the 1st of August. On the same day, Sir Eyre Coote's division, which had already landed on Walcheren, obliged the garrison of Veere (amounting to 519 officers and soldiers) to capitulate, and established its head-quarters at Middleburgh, which capitulated also. The commander, at the same time, detached a corps to reduce the fort of Rammikins. This place surrendered on the 3d of August, and a way was opened to our vessels into the West Scheldt. A British flotilla, in the mean time, had advanced through the Sloe-passage; so that we now commanded the approach to Flushing by our troops on the north, and by our naval force on the east and west sides; but the investment to the southward was not yet effected. While Sir Eyre Coote's division was thus employed, the reserve took possession of the island of South Beveland; but this corps, from the 2d of August, remained merely as a corps of observation. In the mean time, the shores of the East Scheldt having been unexpectedly found defenceless, General Grosvenor's division, instead of disembarking on the island of Schouwen, landed on the coast of Walcheren, and proceeded to assist in the operations before Flushing. The original plan of attack was to reduce the place by means of bombardment; a mode of capturing places by no means so certain in its effects as a regular and scientific siege. It is also contrary to every principle of humanity, as well as policy, to aggravate the horrors of war, and excite the hatred of the people, which, after the conquest of the place, may be of the most serious disadvantage to ourselves. It was a part of the plan, as we have seen, that the Marquis of Huntly should land upon the island of Cadsand, and cut off the communication between Flushing and the Continent. Unhappily this part of the plan was frustrated, by the force of the enemy being stronger than expectation. Before our smaller armed vessels could intercept the communication between this island and Flushing, the enemy had thrown from thence into the latter garrison about three thousand men.

Bombardment of Flushing.

The town being completely invested, some inconvenience was at first apprehended from the enemy cutting the dyke: our trenches were, in many parts, made useless, and the platforms of some of the batteries were partly overflowed. The batteries, however, with the exception of one which was called the seamen's battery, was mounted with artillery on the 13th of August, and, at noon, a tremendous fire commenced on the devoted town. A flotilla of bomb vessels and gun boats were stationed on each side of the town, under the orders of Captains Cockburn and Owen, to assist in the bombardment. The artillery was pointed with the sole view of destroying the houses, magazines, and other buildings. The commanding general, (Sir Eyre Coote,) however, being doubtful of the success of the bombardment, and alarmed at the progress of the inundation, which now began seriously to impede our operations in the low ground, determined to carry forward the attack along the dykes on both flanks of the place. In the evening, therefore, a lodgement was made on the right of the line, on the sand hills, between the dyke of the Nolle, and the body of the place; and operations were also projected for a nearer approach on the left of our position. During the whole of the night, an uninterrupted fire was kept up from the batteries, and, on the morning of the 14th, the seamen's battery being added to the rest, and the line of battle ships being enabled to advance, the attack was carried on with still greater fury. At the same time, a breaching battery was marked out in such a position, that had it been completed, its fire, in the course of a few hours, would have laid the rampart open, and exposed the enemy to an immediate assault. At four in the afternoon of the 14th, the firing was suspended, and the Earl of Chatham directed the commanding general to make an offer of terms to the garrison; but as General Monnet refused to surrender, at nine o'clock in the evening the fire of the batteries recommenced, and the bombardment was furiously renewed. At one o'clock in the morning of the 15th, the French made offers of a capitulation, which were immediately negotiated and signed; the garrison, in number 5803 men, laid down their arms, and were to be sent as prisoners to England. When our army entered Flushing, the dreadful effects of the bombardment were discovered; more than 247 private houses, and several public buildings, were in ruins, many hundreds of inoffensive citizens, and women and children had lost their lives, and a far greater number were wounded. The French garrison had suffered little. In the dock yard there were found a line of battle ship, a frigate, and a brig, in a forward state of construction.

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Before the attack on Flushing had commenced, the divisions of the Earl of Roslyn and the Marquis of Huntly had landed, and occupied cantonments in South Beveland. From this time the Earl of Roslyn took the command of the island, and established his head-quarters at Ter Goes. On the 15th, a capitulation was entered into with the islands of Schouwen and Duiveland, by the Earl of Roslyn and Sir R. Keats, and a detachment was sent to occupy the capital of the former island. On the morning of the 16th, ten frigates which had forced the passage of the West Scheldt, anchored in front of Bathz, a fortified position at the south-east extremity of the isle of South Beveland, which was of the utmost importance to the ulterior object of the expedition.

But, however unprepared the enemy had been at our first arrival, their situation and defences were soon formidably improved. Large reinforcements of their troops had arrived. On both banks of the Scheldt batteries were erecting to prevent the farther advance of our ships, and a boom chain had been already fixed across the river, between Forts Lillo and Loofkenshoek. Measures had been taken to cut the dykes of Tholen, and thus overflow the country between that place and Bergen-op-Zoom. General

Bernadotte had arrived at Antwerp, and as French and Dutch troops continued to pour into that town and Bergen-op-Zoom, it became doubtful whether (setting aside the question of a siege) we had a sufficient disposable force, after the fall of Flushing, to cope with the enemy in the field. While yet the extent of the difficulties must have been foreseen, the movements of our forces, for a time, strongly indicated a determined view upon Antwerp. Soon after the British troops had entered Flushing, a division of line of battle ships proceeded up the West Scheldt towards Bathz. Corps of troops were passed from Walcheren, and divisions were re-embarked on board transports, and ordered to rendezvous, with the rest of the army, at Bathz. Horse transports, store-ships, gun-boats, fire-ships, all were concentrated to this point. Eight days and a half after the surrender of Flushing, head-quarters were established at Bathz. On the 25th, the Earl of Chatham held conferences with several of the general officers of the army. On the 26th and 27th, councils of war were held; and it was soon understood that the ships of war and transports would immediately retire, and that south Beveland would be evacuated without any farther attempt or demonstration. Sir John Hope was entrusted with the final evacuation of South Beveland. The islands of Schouwen and North Beveland were also evacuated; and, on the 4th of September, the rear guard of the reserve was embarked on board a squadron of frigates, under the command of Lord William Stuart, which sailed at once for the lower part of the West Scheldt. The line of battle ships, and other armed vessels, with all the transports, had taken their departure, so that, after the 4th of September, Walcheren was the only island in the province of Zealand which remained in our possession. It is much to be regretted, that the evacuation of South Beveland was not decided upon, as it might have been, immediately after the fall of Flushing. It was evident the enemy's fleet in the Scheldt could not then be attacked with any hope of success; and if that part of the army which was not necessary for the defence of Walcheren had been sent to England, we should not only have been spared the mortification of an inglorious retreat, but we should have saved the lives of a number of gallant soldiers.

About the middle of August, the disease incidental to the climate began to spread, and many of our men were sacrificed, in Beveland, to its effects. Not less dreadful were the ravages of the disease in Walcheren. In the course of two months we lost 1700 men; and towards the middle of September, the average number of deaths was from 200 to 300 men a week.

After the evacuation of South Beveland, no military event of importance occurred. On the 14th of September, the Earl of Chatham embarked and set sail for England, leaving Sir Eyre Coote, with 15,000 men, for the defence of Walcheren. Lieutenant General Don was afterwards appointed to succeed Sir Eyre Coote, and he arrived at Walcheren on the 24th of October. During the whole of this time, it was uncertain whether our troops were to form a permanent establishment on the island or not. A month was wasted in hesitation and delay; and, extraordinary as it may appear, the greatest activity began to be displayed at the time when it became doubtful whether we intended to maintain or abandon our conquest.

About the middle of November arrived the order to evacuate the island, and demolish the works and naval basin of Flushing. On the 23d, the island of Walcheren was completely evacuated by the British army. The land fortifications of Flushing, the defences of Veere, and the fort of Rammikins, all of which had been improved at considerable expense, were left in a much better state than when they first came into our possession.

Attack upon Naples by Sir John Stuart.

While the tremendous and concentrated power of France was overwhelming the centre of Europe, it may be questioned, if all the disposable force of Britain could have availed in co-operating against her, had it been even pointed to one quarter; but, if solid and undivided co-operation was insufficient, much more was a desultory system of diversion likely to be fruitless. Besides the expedition to Walcheren, an attempt was made, during the summer, to invade Naples. Sir John Stuart embarked from Messina in June, from the island of Sicily, with 15,000 British troops, and a small force of Sicilians. A brigade, which was detached to the Calabrian coast, took possession of a line of posts which the French had erected opposite to Messina. The island of Ischia was the first point of attack of the main army: its fortified and rugged shores were possessed by the gallantry of the troops; and, in a short time, two garrisons and a flotilla of gun boats surrendered, 1500 regular troops were made prisoners, and 100 pieces of ordinance were taken. So far our arms were successful; and it appears that the diversion occasioned the recal of some of the French troops who were to have joined the army of Italy, as well as of a portion who were to have marched into the papal territories. But the attempt on the continent and city of Naples was abandoned; for, besides a regular force which King Joachim had assembled, a large body of national guards had been embodied. Of the natives, there was now sufficient time for many to be personally interested in the new dynasty, by sharing in the powers and rewards of office; and there was a still greater number paralysed by fear of the usurper, or neutralised by distrust of the real value of their ancient government. But, though disappointed in his views upon Naples, the British commander determined to occupy Ischia, and to take possession of Scilla Castle. While operations were rigorously proceeding against the latter place, the enemy suddenly appeared in superior force, and obliged the besiegers to sail for Messina. They disappeared in a short time, and the British renewed the attack; but the French again presented themselves as suddenly as before, and the British, after four days possession of the fortress, were forced to abandon it, with all their other conquests.

The failure of the expedition to Walcheren was followed by no scrutiny that could satisfy the public mind; but it brought to light a personal dispute in the cabinet. On the 22d of September, a duel took place between Lord Castlereagh, secretary for the

Duel between Lord Castlereagh and Mr Canning.

colonial department, and Mr Canning, the secretary of state for foreign affairs. The grounds of Lord Castlereagh's challenge were, that Mr Canning having conceived his lordship inadequate to the duties of his high station, had clandestinely obtained a promise of his removal from the Duke of Portland; and during six months that the plan of his dismissal was in agitation, had disingenuously concealed the circumstance from his lordship's knowledge. It appeared indeed undeniable, that Mr Canning, who had denounced the other to the premier as an incapable war minister, far from disclosing this opinion to Lord Castlereagh himself, had treated his lordship as if he still possessed his confidence, and had allowed him to plan and to carry into execution the most expensive and formidable armament that ever sailed from the British shores. The affairs of Spain called for a vigorous minister to be sent from this country: Lord Wellesley was accordingly gazetted to that appointment; but he delayed from May till August, till the Walcheren expedition should sail; while the interests of Spain were neglected, that he might succeed Lord Castlereagh as war secretary. Even Lord Castlereagh's removal was not to take place, unless it could be reconciled to his lordship's feelings. It appeared, that such had been the clashing of personal interests, such the indecision of our councils, that four different arrangements, respecting the business of the war department, had been resolved upon in the space of as many weeks; while Bonaparte was subverting the last independent empire in Europe.

Changes in the cabinet.

In the mean time, the ministry was completely broken up. The Duke of Portland, who had exerted his matured and experienced talents in the cabinet, but which had been rendered too inefficient to his country by the bodily agonies which he endured under the disease of the stone, resigned on the verge of death. Lord Castlereagh and Mr Canning resigned formally after their duel. By the demise of the Duke of Portland, the superintendence of his majesty's councils devolved on Mr Perceval. He wrote to Earl Grey and Lord Grenville, inviting them to assist in forming an extended and combined administration. The offer, however, was not such as to warrant the acceptance of those noblemen. Application was made more successfully to the Marquis Wellesley, who succeeded Mr Canning as secretary in the foreign department; Lord Liverpool was transferred from the home to the war department; and Mr Ryder was placed in the room of Lord Liverpool. Lord Palmerston was appointed secretary at war, in the room of Sir James Pulteney.

Military operations in Spain.

The hopes of effectually assisting the peninsula had no sooner been animated by the rising of the Spaniards in Gallicia, and the approach of an Austrian campaign, than Sir Arthur Wellesley was detached with an army, small but well appointed, with immediate orders to act in Portugal, but with discretionary powers of extending his co-operation to the Spaniards. He landed at Lisbon on the 22d of April. General Soult, who had penetrated through Gallicia, and left that country behind him, without dreading the insurrection which shortly after broke out, had possessed himself of Oporto, and intended, undoubtedly, to have marched to the south of Portugal, where he expected to effect a junction with Victor; but, learning that a formidable British force had landed, he attempted to force a retreat into Spain by the route of Zamora: For this purpose it was necessary to possess himself of the pass of Amarante; but the Portuguese general Silviera so obstinately defended this approach, that he was obliged to retreat back to Oporto. Marshal Victor was at this period at Merida, while Cuesta held a position at Monasterio. Conceiving that Victor's force was sufficiently watched by the latter commander, Sir Arthur Wellesley determined to advance against Soult, and to drive him from Oporto. But Soult, sensible of his inequality to meet the combat, and wishing, at the same time, to give Marshal Victor an opportunity of pushing into the south of Portugal, withdrew the main body of his army, and left his rear guard at once to entice his pursuer, and to protect his own retreat. An action took place between the advanced guard of the British and the rear guard of Soult at Vendas Novas, in which the former, being gallantly supported by a Portuguese regiment, drove the enemy from a strong position on the heights above Grijon. The enemy then retreated across the Douro, and opposed the passage of our troops: the river was crossed, however, with the characteristic valour of British soldiers, and Oporto was recovered. Sir Arthur Wellesley even hoped to cut off the retreat of Soult. The Portuguese general Silviera was posted upon the Tamaga. If he had been able to have held this position, no retreat could have been open to the enemy, except across the Minho; but the loss of the Bridge of Amarante, which the Portuguese were unable to defend, afforded the French a passage into the north of Spain. Sir Arthur Wellesley left the pursuit of Soult to protect Lisbon and the south of Portugal from Victor.

In the mean time, the affairs of the patriots in Spain were checked with alternate success and disaster. On the Minho they repulsed Marshal Ney (Duke of Elchingen) and General Loison at the head of 8000 men. Forcing Ney to retreat, they bravely recovered Corunna and Ferrol. They got possession of St Andero; but this last place was the scene of a tragical reverse,—it was recaptured by the French general Bonnet, and 5000 patriots were put to the sword. In the north east of Spain, General Blake threw succours into Gerona, which nearly rivalled Saragossa in the bravery of its defence. He endeavoured also to relieve Saragossa; but exposed himself, in a rash encounter with General Suchet, to a total and disgraceful defeat. His troops, struck by a sudden panic, abandoned their baggage, their artillery, and their arms. Blake was thus obliged to abandon Arragon, and endeavoured, at a distance from the enemy, to restore discipline to his army.

Still, however, the French thought it imprudent, while their reinforcements were abridged by the war in another extremity of Europe, to advance to the south of Spain. Before they could reach Seville, it was necessary to possess the passes of the Sierra Morena; and, in the strong-holds of these passes, the enemy dreaded to attack the Spaniards under Venegas. Leaving that quarter unassailed, King Joseph sent reinforcements from Sebastiani's army to General Victor; whose army, thus strengthened to the number of 35,000, took its station along the Alberche, and in the neighbourhood of Talavera. His design was to oppose the march of the united Spanish and British armies againt Madrid; for Sir Arthur Wellesley, after returning from the pursuit of Soult, judged it expedient to direct his force against Victor, and for this purpose determined to co-operate with Cuesta.

On the 20th of July, a complete junction of the allies had taken place; and relying on the auxiliary movements of Sir Robert Wilson, (who, with a well-disciplined Portuguese corps, was ordered to Escalona,) and the division of Venegas, which advanced to Argonda, the grand army proceeded to Talavera, where the right of the enemy's outposts was driven in. On the 24th, the corps of Victor fell back from the Alberche, and formed a junction with the army of Sebastiani. The French having at last combined all their forces, including the garrison of Madrid, the guards of King Joseph, and the corps of Sebastiani, Victor, and Jourdan, first repulsed Cuesta, who had attempted to pursue them.

The Spanish general fell back, after his repulse, upon the British army; and the allies, determining to await the attack of the enemy, stood in a strong position at Talavera. Their united numbers amounted to 64,000 men, of which 26,000 were British. On the 27th of July, the French, 45,000 strong, advanced to a general action, in which they attempted every quarter of the allied army without success. Being completely repulsed, they retreated across the Alberche, with the loss of 20 pieces of cannon, and, according to our calculation, of 10,000 men. The loss of the British, on whom the stress of the action fell, was not less than 6000. The Spaniards, who fought bravely, though they were less engaged, had about 1000 killed and wounded. Abundant triumph has been made over this victory. We confess it appears to us a less remarkable achievement than the other victories of Lord Wellington, that 64,000 men should, upon a strong position, repulse 45,000. It has been said that the Spanish troops were undisciplined, and contributed little to the victory. This fact we deny; for the army of Cuesta was the best disciplined of the Spanish troops. The Spaniards covered the right wing; and it was by their aid that General Campbell's brigade, which occupied a commanding position in the centre of the armies, was enabled to hold its position, and to capture the enemy's artillery. That the Spaniards were less engaged than the British is certain; but their usefulness in the engagement certainly brought the force of our army to a fair equality with the enemy, if not to such a superiority on our side as might be reasonably expected to produce a victory.

But the allies had scarcely time to congratulate themselves on the victory, when it was found that the situation was dangerous and untenable. Soult, Ney, and Mortier, having formed a junction, had advanced through Estremadura, and got over in the rear of the British; while Victor, though defeated, had still 30,000 men. Leaving Cuesta to defend Talavera, and to take care of the British wounded, Sir Arthur Wellesley marched, on the 3d of August, to Ovopesa, in the direction in which Soult was advancing. On the evening of the same day, however, he was informed that Cuesta meant to leave Talavera immediately, dreading that the British would be unable to oppose the united numbers of Soult, Ney, and Mortier. The hospital of the British wounded, which the English General had entrusted to him, Cuesta was obliged to abandon to the French.

From this perilous situation, Sir Arthur Wellesley retreated as fast as possible by Deleytosa to Jaraicejo, where he remained for some time with his advanced posts, on the Tagus, unmolested. But his distress for want of provisions, and the means of transport, which he had incessantly and in vain represented to the Spanish government, still continuing to increase, he found it necessary to retreat to Badajos, on the frontiers of Portugal. Here, during the remainder of the year, his army remained, not only inactive, but exposed, from the unhealthiness of the situation, to the ravages of a very fatal disorder.

Siege of Gerona.

Gerona, the key of Catalonia, had maintained, as we have already mentioned, a noble and protracted resistance. Almost the only strong part of it was the castle of Montjoi, but even after this had been reduced to a heap of ruins, the city still stood. By a dexterous and bold manœuvre of General Blake's, a relief of provisions and ammunition was thrown into the place, and its garrison raised to the effective strength of 3000 men. The French generals, St Cyr and Verdier, after having made four ineffectual assaults, were recalled by Bonaparte from their command, and the siege was entrusted to Augerau, whose unwearied activity and superior numbers, at last succeeded in driving off the covering army of Blake, and taking Gerona by storm, after its walls were beaten down, and the strength, though not the spirit of its inhabitants, had been reduced by famine. Besides the fugitive army of Blake, the Spaniards still maintained, in the begining of November, a central army under Cuesta and the Duke D'Albuquerque, and an army on the left under the Duke del Parque. The latter commander being posted at Zamanes, about six leagues to the south of Salamanca, obtained a brilliant victory over a considerable French army, lately commanded by Ney, but now under General Marchand. But advancing to Salamanca, he was defeated at Alba del Tormes, with immense loss. A similar fate befel the army of La Mancha under General Areisaja, which, attempting to penetrate to Madrid, was attacked at Ocana, and routed with the loss of 40,000 muskets and all its artillery. Thus, at the close of 1809, (a year never more perhaps to be paralleled in Europe for an opportunity of union against its common enemy), Spain witnessed the successive dispersion and defeat of her principal armies. Her supreme Junta still edited addresses full of pompous language, and confident expectations; while their measures were for every practical purpose, either torpid or mischievous. Two circumstances indeed took place, from which a change in the character of their measures was expected,—the admission of the Marquis Romana into that body, and the arrival of the Marquis Wellesley as ambassador from Great Britain. But neither of these characters were able

Reverses of the Spanish arms.

to instil into the Junta any portion of their own energy. The Marquis Wellesley only gained their tardy and reluctant consent to one important point, viz. the meeting of the Cortes. The 1st of January 1810 was fixed for their convocation.

Meeting of parliament.

The session of parliament was opened on the 23d of January, 1810. In his majesty's speech, although it was acknowledged that the principal ends of the expedition to the Scheldt had not been attained, it was confidently hoped, that advantages materially affecting the security of the kingdom would be found to result from the demolition of the docks and arsenals at Flushing. The expulsion of the French from Portugal by his majesty's forces under the conduct of General Wellesley, now created Lord Viscount Wellington; the late victory of Talavera; the spirit of unanimity displayed by the Portuguese; and the confidence reposed by their regent and their local government in our alliance;—these, as well as the assembling of the cortes in Spain, were subjects of congratulation in the royal speech. The intercourse between his majesty's ministers and the American government, was stated to have been suddenly and unexpectedly interrupted; but the hope and desire of renewing friendly relations with that country, were strongly expressed. In the course of the debate upon the address in the lower house, the chancellor of the exchequer boasted, with considerable triumph, over those who had prognosticated the ruin of our trade from the effects of the orders in council; that the exports of the last year had not only exceeded those of the preceding, but of any former year in the most favourable period of peace. The exports of the year ending in October 1809 were greater, by seven millions, than during the most abundant years of trade and peace, and by ten millions than any preceding year of war.

Inquiry into the policy and conduct of the expedition to the Scheldt.

On the 27th of the same month, the commons resolved to institute an inquiry into the policy and conduct of the expedition to the Scheldt. The inquiry continued till the end of March. As the apology for the expedition, offered in the royal speech at the opening of the session, viz. that advantages affecting the security of the kingdom had resulted from demolishing the docks and arsenals at Flushing, was little calculated to satisfy the public mind, ministers were not only foiled in their attempt to preclude enquiry, but obliged to make a long and laborious defence of the measure.

Speech of Lord Porchester.

Lord Porchester, in moving a resolution of censure upon ministers, expressed his full conviction that no blame was imputable to either the military or naval commanders. The resolution, he contended, was preposterous in its objects, undertaken, not merely without regard to the insurmountable difficulties that lay in the way of those objects, * but against the predictions of the best naval and military authorities which had been consulted. Nothing but defeat could have been augured. The disappointments had been regularly traced, and distinctly foretold. Adverting to the evidence which had come before the house, he stated, first, that of Sir D. Dundas, who, early in the summer, had been questioned as to the chance of success in an attack upon Walcheren. Sir D. Dundas, though unwilling to give an opinion, where sufficient information was not afforded, had spoken of Antwerp as a strong town, capable of standing a regular siege, at least till the whole force of France and Flanders could be poured upon the British; and urged Lord Castlereagh to consider the delay and disparity of force, which might make the expedition ruinous and disgraceful. The next evidence was that of General Calvert, who had warned the war minister, that the movements of our army must be subject to many impediments, and that the sieges of the towns must at all events occupy a period sufficient to allow the collecting of the whole Dutch and Flemish garrisons to overwhelm our few troops, through that most difficult country. Colonel Gordon, when consulted on the business, had concluded by declaring, in the most impressive and decided terms, that the enterprize was one of the most, desperate nature. General Broderick's evidence established the conclusion which had been derived from the former authorities. General Hope, upon maturely weighing the whole matter, decided upon it, that the attempt would be full of hazard, likely to do much mischief if it failed, and little good if it succeeded; and leaving us this consolation in not making the attempt, that nothing of serious advantage was lost by our leaving it untried. Of five military authorities that were consulted, four were directly adverse, and one unfriendly to the plan. Lord Castlereagh, (said the noble mover of the censure,) appeared as if he had asked for advice only for the purpose of acting against it. Ministers had formed a plan for attacking Antwerp, and for the capture and destruction of the French ships, arsenals, and depots; yet it was not until after orders were given to prepare the troops for this service, that they had begun to arrange a plan of operations for making good their entrance into the Scheldt. The passage to Cadsand was indeed forced; but how was it forced? The gallant Captain Hanchett of the Raven had declared, that the shells of Flushing came aboard of his ship, while the round shot of Cadsand went through her; and Sir Richard Strachan had told them farther, that the ship was crippled and stranded. Against Antwerp, disposed as our forces were, we could have brought only 17,000 men. Was the French empire so low in respect to military resources in this quarter, a quarter where the channels of communication are so numerous, as not to muster an army from Flanders, from Holland, Westphalia, from the vicinity of Paris itself, sufficient to overwhelm so small an army? Only 17,000 men, of all our force, could have ever been brought to attack Antwerp, (setting aside all consideration of Fort Lillo, and of every obstacle to their advance upon Antwerp,) and yet it had been declared that 40,000 men were requisite to besiege Antwerp. Antwerp, according to the plan of Lord Castlereagh, was to have been taken by a *coup de main;* but in the event of an assault proving unsuccessful, the object was to be attained by bombardment. With regard to the *coup de main*, Lord Chatham had urged, in his own vindication, that to carry the place by a *coup de main*, was impracticable. The same was the opinion of General Sir W. Erskine, whose professional knowledge, displayed in his examination at the bar, had excited the admiration of the house, had stated, that having been at Antwerp in 1794, he knew it to be secure against a *coup de main*, and that in one week it might be put in a situation to stand a siege. Sir W. Erskine, too, had mentioned his doubts respecting the expedition, to Sir Richard Strachan, and by him they had been reported to Lord Castlereagh before the expedition sailed. It appeared that all the predictions of the former officer had been verified. Sir Eyre Coote, the Marquis of Huntly, General Calvert, had all agreed that the assault of Antwerp was either hazardous or impracticable.

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* Lord Porchester's speech on the Walcheren expedition, March 26th, 1810.

From these facts, supported by evidence before the house, and from a minute survey of the diffuse and divided plan of operations given in the separate instructions of the commanders, Lord Porchester affirmed, that the enterprize, if not impracticable in itself, was at least rendered so by the bad arrangements of its contrivers. The pestilence, which had so frightfully destroyed our army, he said, was known to professional men, and must have been known to ministers. Was it forgotten what our troops had experienced from the climate of Walcheren in 1794? and yet the season was chosen for operation when that pestilence was known to be most fatal. After it was known in September, that there were 8000 sick in Walcheren, lying without medicines, without blankets, and without shelter, the most fatal delays had occurred in relieving the misery of our army. He was not disposed to lay all the blame of that delay on government; but when Lord Chatham relinquished the ulterior objects of the expedition, why had not the army been recalled from that scene of death and contagion, whilst it could be called an army? We were not to be told that Walcheren was to be kept as a military position, because it would cost more to retain it than it was worth, because our frigates could not remain at any time in the Veergat, Ter Teer being within the range of the enemy's shot and shells. The population of Britain could not supply the waste of such a position. Why had ministers been so callous to the sufferings of our brave men, while the country so deeply sympathised with them? Intelligence of the calamitous state of the troops was received on the 2d of September. On the 8th Lord Castlereagh resigned; and on the 17th Lord Liverpool's letter for the recal of the army was dated; but the whole of that period which should have been employed in arrangements for saving the lives of our soldiers, was consumed by ministers in their disgraceful squabbles for office. The last defence of the expedition to which his lordship alluded, was its acting as a supposed diversion in favour of Austria. All the evidence in behalf of ministers to this effect, was the opinion of Colonel Mosheim; who could state no other effect which it produced, than the return of two or three battalions from Louvain. It was known before the expedition sailed, that the defeat of the Austrians had decided the fate of the campaign, and the fate of the Austrian war. And this was the moment chosen to speculate in diversions, when France had every where a force completely adequate to the defence of every part of her empire.

Speech of Lord Castlereagh.

Lord Castlereagh, in reply, acknowledged, that he could produce no formal opinions directly in favour of the expedition; but he had had a variety of conversations with military judges on the subject, which were so satisfactory, that he took the king's pleasure on the subject on the 14th of June, though the measure was not finally decided on till the 21st. He contended, however, that it was not necessary for government to protect itself, as to the policy of an expedition, by the previous sanction of military authority. He appealed, if the expedition to Buenos Ayres was adopted on previous military information. The expedition, planned by the great Lord Chatham, against Rochefort completely failed: The officer to whom it was entrusted had an impression that it would not succeed, and applied for a specific plan of operations. Lord Chatham replied, that it was for government to judge of the policy of the plan: it was for him to look to its execution, and to judge of his measures from contingencies that might arise.

In answer to all the objections that had been urged against the expedition on the score of policy and delay, he would maintain, in the first place, that it could not have been sent out sooner, and that no where could it have been employed so advantageously. Some thought it would have been employed more advantageously in the peninsula, others in the north of Germany. Both parties reprobated its being employed in what they called a selfish object. It was our duty to send an army to the opposite coast, even though it should not be able to make a considerable advance from it. Four days before the expedition was determined on, government received news of the battle of Aspern;—were they not justified in sending an army to the continent, when the fate of the world depended on what was passing on the Danube? The battle of Wagram which followed, adverse as the result of it was, shewed *the person at the head of affairs in France*, the danger of committing his crown to a second struggle. The issue of the combat was known to his majesty's ministers only the day before the expedition sailed. To prove that the expedition operated a diversion in favour of Austria, it was not necessary to shew that troops were sent from the Danube to oppose it, it was sufficient if he could shew that troops were prevented from joining the army in Moravia; but it was a fact, that though no troops were sent from the Danube, the garrisons of Custrin, Glogau, and the other fortresses in Silesia, were concentrated, and sent into the north of Germany to oppose it. As to sending the expedition to that quarter, in the first instance, nothing could have been more unjustifiable. In the first place, it would have been necessary for them to create an army in the north of Germany; and were they afterwards to disgrace themselves by abandoning our supporters in that quarter? But although the object of the expedition was not selfish, he was content to defend the single object of obtaining Walcheren. The value of the place, in the opinion of our ancestors, had been proved in many cases. In the time of Queen Elizabeth it was retained. In 1747 it was also kept possession of. It had, indeed, been retained by many different administrations, and relin-

Speech of Lord Castlereagh.

quished rather on grounds of military interest than medical inexpediency. The unwholesomeness of the climate of Walcheren, was not, however, to be imputed to him, as involving the fate of the whole army; it could, at most, only concern that part of it which was destined to the island itself, and did not involve that part which was destined to Antwerp, a place comparatively healthy. A hope had indeed been entertained, that the ultimate object of the expedition, the seizure or destruction of the ships at Antwerp, might have been effected before they got above that city, or even under the protection of Lillo. This hope was frustrated by one of those chances of war, which it was impossible to foresee, and for guarding against which no ministry could be responsible. The question then was, whether the advantages naturally to be expected from the expedition, were to be put in competition with the risk? The effects of disease had proved greater than even medical men expected. Government had acted on the best possible information. The enemy had, at the latest, a force of only 30,000 men in that quarter. We had, including seamen, 43,000 men to act against Antwerp. It was confidently expected, that the navy would be able to co-operate against the place. General Sir W. Erskine had thought, that it could not be taken by a *coup de main*; but, with deference to that officer's opinion, he conceived it to be outweighed by what he conceived to be better authority. The fortifications of Antwerp had not been repaired since the days of the Duke of Parma. It was the opinion of Sir D. Dundas, that Antwerp might be reduced by bombardment like Copenhagen,—the latter city had outworks, Antwerp had none. The time spent before Copenhagen was ten days; Antwerp should have been reduced in half that time. In June, it is true, the enemy were said to have 20,000 men in that quarter; but the insurrection in the north of Germany, the ferment in Holland, the general spirit which arose in Europe from the news of the battle of Aspern, immediately after obliged the French to reduce that force to 11,000.* No effort appeared to be made for the defence of Antwerp, till the arrival of the British armament. We came upon them by surprise. If evidence, amounting to mathematical demonstration, were always to be required to justify military enterprizes, what bold or great designs would be undertaken? there would be an end to enterprize, to the brilliant achievements which had raised the fabric of British glory. It was not on this cold principle, that Nelson ventured to attack the Danes at Copenhagen, or that Wolfe ascended the heights of Abraham. If such enterprizes were to be sanctioned by official calculations, he would say, that the glory of the British empire was at an end.

Speech of Mr Grattan.

Mr Grattan, in a subsequent debate, severely reprehended the ex-minister, for presuming to shelter himself behind the authority of Lord Chatham, whose wisdom and vigour formed so striking a contrast to the folly and weakness of his own administration. It had been avowed, that the armament was resolved upon, and prepared before ministers received intelligence of the fatal battle of Wagram, and the signing of the armistice; and that even after that intelligence, it was thought right not to stop it, but to send out the expedition; that was to say, that it being proper to send an army to create a diversion in favour of Austria while at war with France, it was also proper to send it after Austria had been compelled to make her peace. The arguments on the other side amounted pretty much to this, that having a disposeable army, it was absolutely necessary to make use of it; that was, to get rid of it. Ministers had said, that they were not bound to abide by military opinions; and yet in effect they had relinquished that assertion, by contending that the opinions of military men were divided. He would contend, that the opinions of the best authorities were neither dubious nor equivocal. Sir D. Dundas had stated great risk. Sir John Hope had declared that, as soon as he saw the state of things, he was persuaded that the attempt was impracticable. Lord Roslyn was of opinion, that the expedition could not at any time have succeeded. Lord Chatham entertained doubts on the subject, but those doubts were borne down by orders from the admiralty. Sir Richard Strachan had expressed his conviction to Lord Mulgrave, that the expedition would fail. But ministers pretended that they had secret information, which fortified them against the fears and doubts of professional men. Take an example of this secret information, as delivered in the report of the secret committee. They had been secretly informed that Cadsand was without troops. On his arrival at Cadsand, the Marquis of Huntly found a landing impracticable, from the superior force of the enemy. Such was their secret information. The same credit was due to the representations of the dilapidated state of Antwerp, on which they founded the ulterior object of this ruinous enterprise. Ministers had sent out an expedition of one hundred thousand men, of the result of which the general had great doubts, of which the admiral had no hopes, without a plan of Antwerp or of Lillo, and without a plan of co-operation. It was in vain for them to say, that they hoped for every thing from the spirit of British soldiers, for they sent them to encounter the plague, over which no spirit could triumph. Long after a necessity for retaining Walcheren had ceased to exist, (if a necessity ever existed,) they had persisted in retaining it. In the whole transaction, said Mr Grattan, government could only be exceeded in their guilt by that parliament which would excuse them.

The result of these debates was a resolution of the house, (carried, however, by majorities smaller than usual,†) on the 30th of March, that, considering the value of the objects of the enterprise, the apparent probability of its success, his majesty's ministers were blameable neither for sending out the expedition, nor delaying to evacuate Walcheren. The army and navy were, by the same vote, absolved from censure; and the whole blame was laid on the state of the wind and weather, altogether unusual at the season of the year. In this opinion of the army and navy, it is probable that the nation fully coincided with its representatives; but it may well be doubted whether they were satisfied with the wind and weather being exclusively to blame, and, like Lear, they might exclaim, in their mortification, "I tax not you, ye elements, with unkindness!"

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* This statement of Lord Castlereagh was contradicted by Mr Ponsonby within a short time of its being uttered. The number of the garrison of Antwerp, on the 26th of August, was 26,000 men.

† The debate closed on Friday, March 30th, when the house divided as follows:

For censuring the undertaking of the expedition, - - - 227
Against such censure, - - - - - - - - 275

Majority, - - - 48

The discussion of the Scheldt expedition was closely followed by another question, of which the issue, in the opinion of one part of the community, dangerously affected the liberty of the subject; but, in the opinion of others, was a necessary assertion of the constitutional privileges of parliament. On the 21st of February, Mr John Gale Jones had been committed to Newgate, by an order of the House of Commons, for a libellous hand-bill, containing general and individual reflections on the members of that house. The offender had not been three weeks in confinement, when Sir Francis Burdett moved the house for his liberation, not upon the principle that he had been sufficiently punished, but that the house had no right to assume such a power of punishment. The warrant of committal, Sir Francis said, was illegal in all its parts, but eminently so in its conclusion. A legal warrant must conclude with the words, "till the party be delivered by due course of law." This warrant ended with the words, "during the pleasure of the house." He valued the rights of the house; but from whatever part of the constitution an exertion of arbitrary power came, it was the high and solemn duty of every Englishman to oppose it. In such a matter there were two obvious questions of justice, "crime, or no crime?" The next question was committal. The house, he said, by such a proceeding, assumed at once a judicial, executive, and legislative power. This was in the very teeth of law. In the due administration of the law, it is provided that the same men shall not take two steps together. One set find the bill, another decide on the fact, another on the law; but that house which administers no oath, which squares itself by no form, which makes no previous examination of the fact, jumps at once upon its dangerous and most alarming conclusion, and finds the accused guilty. Contending, therefore, that this committal was in principle an infringement on the royal authority, as well as on the right of the subject, and a violation of the law of the land, he moved, that "Gale Jones should be discharged." The attorney general, after shewing several cases which Sir Faraneis Burdett had quoted, of the power of the house being resisted by the judges, to be inapplicable to the present question, contended, that Jones might have appealed legally for redress, if he thought himself illegally committed. He might demand to be brought up to the King's Bench on a *habeas corpus*, and then the question would be set at rest. The court would then decide, not on the privileges of the house, whether the particular libel was a violation of them, but whether he had been committed according to the law of the land. The question, however, had been tried before in the Common Pleas, in the case of Mr Wilkes, where the then lord mayor was committed, for committing a servant of the house in contempt. It was then alledged, that the house had no right to commit for a contempt; but Chief Justice De Grey expressed, as his own and his brother judges' opinion, that the house *had* a right, by the law of the land, to commit for all contempts. Mr Sheridan, and some other members, moved an amendment, that Mr Jones should be released from Newgate, his punishment having already been sufficient; whilst they disclaimed the principle of Sir Francis, that the committal had been illegal. The original motion was however put, and rejected by a very large majority.

The House of Commons resolve to commit Sir Francis Burdett to the Tower.

Several days after this debate, Sir Francis published a letter in Cobbet's *Weekly Register*, addressed to the electors of Westminster, in which he declared, (among other irreverent expressions,) that the house, inflated with their high blown fanciful ideas of majesty, and tricked out in the trappings of royalty, thought privilege and protection beneath their dignity, assumed the sword of prerogative, and lorded it equally over the king and the people. This indignity, like the hand-bill of Gale Jones, the friends of privilege were determined should not pass with impunity. Mr Lethbridge moved two resolutions, that the letter in question was a libel on the house, and that Sir Francis Burdett had been guilty of a breach of privliege. They were both agreed to; after which it was moved, that Sir Francis should be committed to the Tower. The motion of committal was also carried. This was in the morning of Friday the 6th of April, and the speaker issued his warrant for the commitment of Sir Francis immediately. The serjeant at arms repaired with it to the baronet's house, but not finding him at home, returned between five and six in the morning, exhibited his warrant, and required obedience to it. The baronet replied, that the warrant was not one which he was bound to obey. The serjeant, unprepared with the necessary means of enforcing obedience, withdrew. On Saturday morning, the serjeant at arms, with his mes-

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For approving the undertaking of the expedition, - - -	272
Against such approbation, - - - - - - -	232
Majority, - - - -	40
For censuring the keeping our soldiers so long in Walcheren,	224
Against such censure, - - - - - - - -	275
Majority, - - - -	51
For approving of the keeping our soldiers so long in Walcheren,	253
Against such approbation, - - - - - -	232
Majority, - - - -	21

Britain.
George III.
1810.

Sir Francis Burdett seized by force, and carried to the Tower.

Tumults in London.

sengers, went again to the house of Sir Francis, and were again turned out. Soon after this, a troop of the life guards arrived in the street opposite to Sir Francis's house, and used means for dispersing the people, who continued to assemble in great numbers. Sir Francis, upon the appearance of the military, sent for the aid of the civil power, and the sheriffs and their constables came. Meanwhile the mob expressed their attachment to Sir Francis, and their indignation at the warrant, by breaking the windows of the houses of several unpopular characters, among which was Mr Lethbridge's, the mover of the business. Their tumultuary proceedings continued through Saturday night, and on Sunday an immense assemblage in Piccadilly pelted with mud every passenger who refused to pull off his hat in honour of Sir Francis. In the mean time, Sir Francis's declaration, that he would not submit unless to superior force, was thought sufficient cause for assembling the cabinet, and an order was transmitted from the war office to summon every regiment within three days march of the capital. A little before 11 o'clock on Monday morning, the serjeant at arms (accompanied by messengers, police officers, and a large military force,) broke by force into the baronet's house. He was sitting with his family, and on the appearance of the serjeant, asked by what authority he entered his dwelling. The serjeant produced the speaker's warrant, which the other persisted in refusing to obey. He commanded them to desist in the king's name, and called upon the sheriff for his aid. It was answered, that the sheriff was not there. Sir Francis then said, that they should not take him, but by force; he was accordingly taken with a shew of force to a glass coach which was in waiting for the purpose. He was conveyed to the Tower, guarded by an immense military force. The capture having been made at an earlier hour than the crowd had expected, he had passed from his house in Piccadilly up Albemarle street, before a cry was set up "they have taken him, they have dragged him out of his house!" The cry soon spread far and wide; and before the carriage had reached the Tower, the mob had blocked up the Minories and all the streets in its vicinity, so that it was necessary for cavalry to clear the way for his reception. This was effected with much tumult, but happily with no bloodshed. At the entrance to the Tower, some of the mob rushed within the paling, and even pelted the cavalry, who, in their turn, cut at them with their swords; but still without the loss of lives. On the return of the military, however, the insults of the mob provoked them to fire some shots, and several lives were lost among the populace. Some of the sufferers, as is usual in such cases, were not among the actual rioters, and the coroners, who made an inquest, returned a verdict of, wilful murder against a life-guardsman unknown. Every part of the town was, on Monday night, paraded by troops, cannon were planted in several of the squares and streets, all the barracks and depots were filled with soldiers, and guards were mounted in private houses.

The important subject which now agitated the public mind, obviously contained two questions,—the particular right of the house over its own members, and their general right to commit a subject. But these questions had a connection which identified them in actual discussion; and as Sir Francis Burdett opposed the speaker's warrant on the broadest supposition of its illegality, his case needed no distinction from that of Gale Jones, except in the aggravation of his house having been entered by force.

While the extreme parties in politics recriminated on each other the blame of the bloodshed which it had occasioned, they respectively congratulated themselves on its issue. Ministers, that they had established the privilege; and the party of Burdett, that he had so boldly, however unsuccessfully, resisted an act which they deemed tyrannical.

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Romilly
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But the extreme parties gained a temporary advantage by the dispute, which was of more importance to them than the settlement of a point in the constitution. The popularity of such a politician as Sir Francis Burdett, was not calculated to ride on calm water—it was kept alive by the passions of the multitude, which were now excited most tempestuously to his advantage. Ministers had also the double advantage of the public attention being recalled from the late Walcheren expedition, and of seeing the constitutional Whigs divided on this occasion. Many of their most respectable opponents, disgusted at the insults which were offered to the popular branch of the government, thought themselves called upon to support the dignity of parliament, and spoke of rallying round the constitution. Others entertaining different notions of the real rights of parliament, took the popular side; and, in point of legal authority, it appears that the Whigs, who opposed the unlimited committing privilege, were the highest. Respecting the commitment of Jones, Sir Samuel Romilly expressed the strongest doubts of the right of the house to interfere in such an instance.† "He doubted whether they had a right to commit for a breach of privilege in the case of a libel, on the conduct of one of their own members. He thought the house had a right to commit in a great many cases; such as where their proceedings were interrupted; where the people, by hissing or otherwise, insulted members coming to the house; where they threatened members, if they voted on a particular side; aud in many cases of the like nature. But he made a distinction between libels published on the past conduct of members, and proceedings still going on in the house. In the latter case, he had great doubts as to the right of committing; because the house acted as their own counsel, jury, and judge; because they were the accusers and the punishers. They began by reading the paper, and they concluded by ordering the party away without hearing him. Would any court of law act in that way? The house were the judges of the law and the fact, and the party was committed during their pleasure without any appeal. But all this was only from necessity; and when the necessity ceased, the power also ceased with it. This was the doctrine held and started by Lord Chief Justice De Grey, in the case of

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† Sir Samuel Romilly's speech, 5th of April 1810.

Mr Crosby, who was committed, as a member of that house, for a breach of its privileges. The court of common pleas could not give any relief, because it did not know what were the privileges of the House of Commons. The chief justice said the commitment was lawful, because it was necessary; and that shewed, that if it had not been necessary, it would not have been legal. The house had been told of precedents and decisions of the courts of law. Of those which had been mentioned, the first was in the reign of the Tudors, and that was not a time (he thought) to which the house should refer in defence of its own privileges,—a time when the house were told, at the beginning of each session, that they were not to meddle with matters of state; and when Queen Elizabeth repeatedly told the house, that they were not to proceed any further in such and such cases. The case of Arthur Hall had been referred to in 1580; was it any thing like the commitment of the house? No; the sentence was to pay 500 merks, and to be imprisoned six months or longer, till he made a retraction. Was there any thing similar between the cases? Could the house now commit for an indefinite time, or for six months? Can it impose a fine, as was done in those days? He could himself cite many cases, in which the house had, in those times, made commitments of a most extraordinary nature, and sentenced men to as extraordinary punishments. There was one, of putting two men back to back upon a horse, and leading them through the streets, with a particular mark upon them. There was another, in which a new and extraordinary punishment had been invented by the house for the particular offence. But were cases like these to be cited as precedents on the present occasion? He was astonished to see it attempted. With respect to the case of Arthur Hall, Mr Hatsel takes notice of it in his book of Parliamentary Cases, and says, that it was afterwards declared to be derogatory to the dignity of the house. These were, in fact, not deserving the name of precedents; but were mere exercises of authority, for precedents are only the decisions of a legal judge. The house had also in later times carried their authority very high, in the resolutions which they from time to time passed. There was a resolution of the house, March 8th 1704, that no man, who had been committed by the House of Commons, should dare to sue for a habeas corpus; but the resolutions of the house were not the laws of the house."

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On the 7th of May, the speaker having informed the house, that he had received two papers and letters from Sir Francis Burdett, of an action which the baronet meant to institute against him in the Court of King's Bench the ensuing term; a select committee was appointed to inquire into the proceedings which had already past, and which ought to be adopted in future, respecting the letter and notice of Sir Francis. On the 11th the committee brought up their report, and, through their chairman, moved that the speaker and serjeant at arms should be permitted to appear in the Court of King's Bench, and plead to the said actions; and that the attorney-general should be instructed to defend the speaker and serjeant at arms.[*] In the debate which ensued on this report, while the high legal authority of Sir Samuel Romilly was opposed to ministers, Mr Ponsonby, who was regarded as the leader of the Whigs, spoke strenuously in favour of the right of parliamentary commitment, though he severely blamed the administration for bringing the house into its present difficulty, by having brought their real privileges to an unnecessary trial. Since the business, however, had proceeded so far, he thought the house could not retract from maintaining their rights.

Debate on the right of parliamentary commitment.

The two houses of parliament, he said, were the sole judges of their own privileges. No court in the country, however respectable the judges, could, or ought to presume to meddle with the decisions of either house. That was the first principle which he should maintain. The next principle was, that whenever either house of parliament has declared its privileges, the courts of justice are bound to pay respect and obedience to them. He quoted Lord Hale, who asserts, that the law and constitution of parliament were founded on the law of the land, and must be taken as such; that parliament cannot be adjudged by any other court; and that the judges of the land had so confessed in many instances. This opinion Lord Hale took from Sir Edward Coke; and both agreed in distinctly stating, that the law of parliament was not merely so, but confessedly *lex terræ*. Blackstone also had said, that the privileges of parliament were large and indefinite, and stated, that no court could interfere with the decisions of parliament. Sir Robert Atkins, one of the judges of the common pleas, says expressly, that the power of parliament consists of three heads: a legislative, a judicial, and a counselling power; and that they have the right of exercising the judicial power in defence of their own privileges. In a case of disputed privilege, it is true, Judge Holt had given as his opinion, that if the right of privilege in all questions was to be admitted, parliament would set no limits, and the people's liberties might be invaded. To that opinion the other eleven judges replied, that it was true: but still there was no limit to their authority; for the law of the land trusted that they would not misuse their privileges. According to the constitution of things, there never was a government in which some discretionary power was not invested. It must subsist somewhere. If the judges of the land were guilty of malversation in their judicial capacity, the house could punish them; but where was the higher authority than parliament? There was none. It might be said that parliament was responsible. So they were to the people. If the house acted wrong, the people had their redress by election; and, when the appeal was made, they might remedy the mischief which the former house had created, by electing other members in their room. The remedy was

Speech of Mr Ponsonby.

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[*] The effect of these motions was, that the speaker and serjeant should plead in bar to the said actions, *i. e.* that through the attorney-general they should go into court, and put in the plea, that the privileges of the House of Commons were concerned; that the house was sitting, and ordered certain acts to be done; that he, as speaker, had enforced those orders; that he did so by their authority; and that having done so by the order of the house, he pleaded in bar, and denied the authority of the court to interfere.

Speech of Mr Ponsonby.

not to be found in an attempt to take away their privileges. As to what had been said about *Magna Charta*, and that no man could legally be imprisoned by the law of the land, unless tried by his peers, it might as well be said, that many of the laws were contrary to *Magna Charta*; for instance, the canon and the ecclesiastical laws, which are not to be found in *Magna Charta*; but nevertheless they are the *lex terræ*, and from immemorial usage, as much as if entered in *Magna Charta*. The privileges of parliament, acted upon from time immemorial, were as much the *lex terræ* as any of the written laws; but then it had been said, that the house could not commit libellers to prison, because they would become judges, jurors, and executioners, in their own cause, and *Magna Charta* would not permit this. But did it ever occur to the modern writers, who threw out such an opinion, when they saw daily the judges of the land punish persons for contempt of court, by committing them to prison, that the judges were then judges, jurors, and executioners, in their own cause. The judges exercised that mixed right, and who could question it? Was it to be expected, that the judges would wait for a trial by jury before they could punish for a contempt of their authority? Were they to stand waiting at the door of a grand jury room, waiting for their finding a bill, subject all the time to the virulence of popular clamour, and without remedy perhaps, for six, twelve, or eighteen months, until relieved by the verdict of a jury? The privileges of parliament, he said, were not inroads on the liberty of the subject, but its safeguards. The commons, who represented the people, were their natural guardians, and their interests were identified. The people, he might be told, would not bear the exercise of those privileges; but our ancestors, certainly as high mettled, as watchful of liberty as the present generation, had borne them, when they declared, that one power and privilege vested in the commons defended the liberties of the people. It had been argued, that the crown would protect the people's rights. What! in a constitution framed like ours, was the crown to be the defender of the people's freedom? No; for (with personal reverence to the reigning monarch) the crown was disposed to be (though not essentially) the enemy of liberty. Why else were there checks put upon it, but that it was natural for man possessed of power to dislike controul? Had the history of England exhibited the crown as the defender of the people's rights? If at any time it should be found, that the house was too much an instrument in the hands of ministers, the remedy was easy, it was only to alter the constitution of it; but never let discretionary power be wrested from it. If the Court of King's Bench are to decide on this question of privilege, they might with equal propriety decide on all the privileges of the house, if called in question. If the serjeant at arms was intrusted to execute the orders of the house, and the person on whom they were to be executed chose to resist, and to beat the serjeant, or the messenger, and actions were to be entered against the party offending, the person might say, why, your officer behaved impertinently, and I beat him; and then the law courts must decide on this, and all the privileges. Was public opinion (he asked) to be the limiter of the judicature of the house? One politician would abridge them of one privilege, another of another, till, between factions bidding against each other at the auction of popularity, the house would have no privilege left."

The motion of the chairman of the committee, already mentioned, was then put and carried. It was next moved and carried, that the attorney-general be directed to defend the speaker and the serjeant at arms against this action. Mr Wynne rose to inquire, whether, in future, it was to be generally understood, that any body might bring actions of this sort against the house, without fear of its exercising the privilege of commitment. A recent case had been determined before the House of Lords, upon a question of privilege, which he therefore considered as analogous to the present. A Mr Hesse, a justice of peace, had acted under the immediate orders of that house, for the purpose of suppresing a riot. An action at law had been brought against him for his conduct; but the House of Lords committed both the principal and his agent, and would not consent to release them, until they gave Mr Hesse a discharge from his action. Was the house now to be understood as abandoning that course of proceeding? The chancellor of the exchequer said, that he was not then prepared to give an answer to the general question; but he would say, that, in every particular case, he thought the house was perfectly at liberty to exercise its own discretion; and, in the exercise of his best discretion and judgment, he did not think that it was necessary to commit the agent of Sir Francis Burdett.

On the 18th of May, Mr Grattan brought forward a new motion for the emancipation of the Irish Roman Catholics. We have noticed, in a former part of the history, how strong a prospect (a prospect coming near, if it did not amount to, an absolute pledge) of Catholic emancipation had been held out at the time of the union, to conciliate a larger portion of the Irish to that measure. Two years after the union, Mr Pitt, when leaving office, had declared his opinion, that an extension of the rights of Protestants to Catholics, was as innocent and safe after the union, as it had been dangerous before it.

Of the cause, it has been truly said, that there is not one name which has been loved in our own times, or will be revered hereafter, by any sect or school of politicians, which is not ranked among its supporters. In times when Popery was still formidable, Locke and Judge Blackstone had anticipated the time and circumstances for enlarging the bounds of toleration, which time and circumstances were now arrived. In latter times, Adam Smith had pleaded in their favour; and Dr Johnson, thirty years ago, had pronounced, that those who would cry, No Popery, in these days, would have cried, Fire, in the time of the deluge. Pitt, Fox, Grenville, and Windham himself, men who differed in their views of all other reforms, coincided in this one. Within the pale of the English church, the cause of Catholic emancipation had been approved by no less authorities than a Watson, a Paley, and a Bathurst. It was not indeed easy to answer the arguments which abstract justice had to plead in favour of the Catholics; and arguments, too, which the dangers of the country, and considerations of policy, every day multiplied and confirmed. The exclusion of a fifth part of our whole population from the possibility of rising to high and important situations in the country, is an injury to the empire, which is thus deprived of the talents which might spring from such a mass of population. It is an insult to that excluded population, which extends still wider than the injury. It saps the foundation of their loyalty and patriotism, or, at least, gives us a weaker right to expect them. It turns the heart and the eye of the degraded Catholics towards that Catholic enemy of the country, who has an interest and pretext to offer his aid for obtaining to them all the rights which their own government denies. It deprives Protestantism itself of the surest triumph over Catholicism—of reformation. It keeps the Catholic more suspected, consequently more degraded, and consequently more bigotted and averse to the purer creed of Christianity.

Argumen against Catholic emancipation.

The opponents of emancipation answer, that the Catholics have full toleration for their religion; they are not punished for going to mass, nor obstructed in the performance of it. To this, it is replied, that a penal law against Catholics, is still a penal law, whether it enjoins the punishment of death or of fine for their religion; and, in what respects is the exclusion of the Catholics from the most honourable offices in the law, the army, the corporations, and the universities, different from a penalty?‡ The right of aspiring to such offices is inherent in the free subject; it is not conferred by acts of parliament; but the statute which takes it away, is as essentially penal as if it deprived the subject of his personal liberty, or of any other right. The third objection to the measure is, that the Catholics would demand more than mere right, and would aim at religious supremacy in Ireland, if their present demands were granted. If it were even fair to deny what is due for fear of more being demanded, it could be easily proved, in answer to this objection, that the Catholics have not the power as legislators to sway the British parliament, and their attempting it by force,

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‡ From the period of the Reformation to that of the Revolution of 1688, popery seems to have been considered, rather as a crime, for which individuals convicted of any overt-act were subjected to punishment, than as a system of faith which the more powerful sect were solicitous to repress or extinguish by durable disqualifications. To celebrate mass, or to attend its celebration, were offences punishable by law; and every subject was liable to severe and unmitigable penalties, if he omitted to attend public worship, according to the forms of the established church, once at least on every Sunday. Catholics, however, notwithstanding the terrible religious rancour of those times, were neither excluded from the legislature, nor exposed to any hardships respecting the enjoyment and transference of their possessions—or the economy and regulation of their families—or their personal rights and immunities. The truth is, that the early rigours exercised upon the Catholics, were rather meant as preventatives of heresy than as political distinctions. During the reign of Elizabeth, the laws against the Catholics were administered, upon the whole, with mildness and forbearance; in England and in Ireland they remained almost a dead letter. In the reign of James II., however, when the Protestants obtained, for the first time, a decided majority in the parliament of Ireland, they were occasionally enforced with considerable rigour. Under Charles, the peculiar difficulties of his situation, and the authorised enormities of the English settlers, led to those scenes of more than savage devastation, which filled the rebellion of 1641. From that period, to the complete subjugation of the country by Cromwell, Ireland was a prey to the most frightful disorders, allayed occasionally by a military despotism nearly as terrible. The soldiery of Cromwell settled themselves in the lands of which they had dispossessed their opponents; and, at the Restoration, the act of settlement confirmed this desolating ejectment, by warranting the absolute transference of eight millions of acres from Irish Catholics to English Protestants.

Such was the state of servitude and penury to which the Catholics of Ireland were reduced on the accession of James II. It was natural to imagine, that, with the known dispositions of this prince in favour of Popery, he would endeavour, anxiously and effectually, to restore the political preponderance of this sect in Ireland. Tyrconnel, (as we have seen,) a blind and furious bigot, was selected as the instrument for obtaining the objects of the king. Except, however, the disarming of the Protestants, the dismissal of some officers, and the disbanding of four thousand soldiers of that persuasion, it does not appear that any very severe oppressions were exercised by the Catholics, to whom a concurrence of circumstances had now given the right of the strongest. Tyrconnel, indeed, had formed a scheme for calling a parliament, in order to reverse the act of settlement; but he was opposed so strenuously by the moderate Catholics in the king's council, that he was compelled to relinquish his project.

William III., called upon by the English people to rescue them from Popery and slavery, came over from a country partially peopled with Catholics, and with an army chiefly composed of Catholics, to destroy the tyranny of a Popish prince in England. The means by which he effected the deliverance of the people whom he came to deliver, indicate the beneficial consequences of a tolerating spirit. The liberties of a Protestant state were revived, affirmed, and augmented, by the leader of a Catholic army; and the principles of our constitution were framed under the auspices of an aid, which liberality had won over to the cause of freedom.

It was natural that, in this struggle, the Catholics should side with the monarch, in whom all their expectations were placed. They, accordingly, made every effort to sustain the fallen fortunes of James; and it was not until 1691 that the Protestant government obtained the full resumption and recognition of its ascendancy, by the treaty of Limerick. By the articles of that treaty, it was expressly stipulated, that "the Roman Catholics should enjoy such privileges in the exercise of their religion as are consistent with the laws of Ireland; or, as they did enjoy in the reign of Charles II.; and their majesties, as soon as they can summon a parliament in this kingdom, will endeavour to procure the said Roman Catholics such farther security in that particular, as may preserve them from any disturbance on account of their religion."

In direct defiance of this solemn pledge, in peremptory violation of the sacred conditions, on the faith of which the instrument was ratified by the submission of the Irish people, three years had scarce elapsed, when the famous act for preventing the growth of popery was passed by the English parliament. The history of this act, though related by a crowd of respectable authorities, should nevertheless be perpetually repeated. When evils subsist for our shame, it is but fair that they should subsist for our instruction.

A party, in England, were in violent opposition to the government of William, whose principles, and, of course, those of his ministers, were known to be enlightened and tolerant. The opposition party resolved to make the king outrage his principles, or subject himself to the odium of protecting popery. In order to effect their object, they purposely brought in the bill could only end in their defeat. But it is pretended, that the principles of the Catholics unfit them for trusts in society; they are bound to persecute; they are freed from the obligation of an oath, and can purchase absolution from all offences done or intended, from the lowest larceny up to regicide. This assertion is completely without foundation. At Mr Pitt's desire, in 1789 and 1790, the six Catholic universities of Europe were consulted upon the tenets of the Catholic Church with respect to the faith that is to be kept with heretics, and allegiance to heretic sovereigns. The university of Douay, the Doctors of the Sorbonne, the university of Louvaine, those of Alcala, Salamanca, and Valladolid, expressed their astonishment at the imputation of such principles, and the dispensing power of the Pope, gave exactly such answers as Protestant universities would have given, had they been consulted by Catholics on the Protestant opinions respecting murder, treason, and perjury.

The present coronation oath is another argument with the anti-catholics. But the coronation oath was framed when Catholics sat in both houses of parliament in Ireland, and were eligible to all offices, civil and military. The oath was framed in the first year of William and Mary, and Catholics were deprived of the rights which they are now reclaiming, by the 1st and 2d of Queen Anne. This is a fact, and it is a conclusive one, respecting the royal oath.

Unreasonableness of the Catholics in refusing the king a veto on the appointment of the bishops.

Unhappily, although the arguments for the cause were so strong, a shield of temporary evasion from them has been afforded to their enemies by the Catholics themselves. In a cause so good, it was indeed the misconduct of partizans, and not the arguments of opponents, that was most to be dreaded. The original managers of the Catholic cause were men of respectable rank, of moderate tempers, and of sound abilities. At their meeting in Dublin, in January 1799, (a time when the union was in contemplation, and when a state provision for the Catholic clergy was actually spoken of by the British government), they agreed to the proposal of allowing the King (in the event of emancipation) a veto over the appointment of their bishops. In 1808, previous to the business being again brought forward in parliament, Dr Milner, the avowed agent of the Catholic prelates, renewed the concession on the part of the Catholic bishops, that, emancipation being granted, they would in future supply no vacancy without presenting the name of the proposed successor to government; and, in case of his being objected to, to present another and another name, till government should be satisfied with the loyalty of the nominee. This was announced in parliament, and immediately became the subject of discussion on the other side of the water. There is no reason to believe that the most respectable among the Catholics were at any time averse to conceding the veto; but there had risen in the popular meetings of this body, as there ever will rise in popular meetings, a set of rash, turbulent, and ambitious men, who envied the confidence and respect due to the superior leaders. These demagogues, attaching to their party all the bigotted and disaffected among their fellow-believers, raised a cry against the veto, which threatened a schism in the Catholic body, and, by their noise and activity, succeeded in intimidating the prelates at the prospect of such a schism, to acquiesce in their absurd opposition.

The unreasonableness of the Catholics in refusing this concession, as a return for emancipation, has been acknowledged by their Protestant advocates; but Mr Grattan, in bringing forward his present motion, gave it as his opinion, that foreign influence, the object of such pretended dread, could be completely avoided, by another mode of security, viz. domestic nomination. Some of the Irish Catholics had, in fact, virtually agreed to the principle. It was not to be expected, however, that the Catholics were to come and make their offer to that house. Overcome them by justice (said Mr Grattan), not by standing out upon terms: give them their just right in the first instance;—make it an article, if you choose, that they shall not elect foreign bishops;—but, at all events, act justly. But the Protestant friends of Catholic emancipation, while they saw with grief that the Catholics had furnished their opponents with a pretext for refusing the claims, did not consider the concessions of emancipation, even without a veto, to be half so dangerous as the present state of affairs. It must be noticed, that, at present, we do not possess the *veto*. What then is done by withholding the rights of that body, but continuing the danger of their disaffection, without gaining the veto? Emancipation, or no emancipation, the veto is not ours, until the Catholics choose to grant it. But the Catholics ought to grant it. True: but is it a matter of indifference that the Catholics should not be con-

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alluded to, which they filled with a variety of absurd and wicked clauses, that the ministry might be compelled to risk its rejection. The court party seeing through this iniquitous scheme, determined to outwit their opponents, by sending back the bill loaded with additional absurdities, that its loss might be imputed to the original framers. They, finding their follies returned upon their hands, flung them back upon their adversaries. And thus this flagitious act, glutted with the rival resentments and united injustice of two parties, neither of which intended it to pass, was finally adopted by the legislature, contrary to the real wish of all branches of it, and of all the parties that composed it. In this manner were the liberties and fortunes of their fellow countrymen squandered away. This is, at least, the history of the English act, which was the avowed model of that which was afterwards passed in Ireland. By this abominable act, and the statutes which were subsequently framed, the Catholics were completely excluded from every constitutional advantage, reward, or immunity, excepting the elective franchise. Of this, too, they were deprived, in the reign of George I., by the action of a new policy on the part of England, the great object of which was to prevent the formation of an independent Irish interest.

From the accession of his present majesty, to the present time, our legislative annals can boast of a series of wise and liberal concessions to the Catholics; but they are still excluded by statute from all offices in the law, from all commands in the army, from all employments connected with the actual government and regulation of the state, from sitting in parliament, from holding corporate situations, &c. No Catholic can present to a living; though Dissenters and even Jews are entitled to this privilege. The qualification of a Catholic juror is made higher than that of Protestants, and no relaxation of the ancient code is allowed, except to those who shall conform to the oath and declaration, prescribed by 13th and 14th George III. cap. 3.

ciliated? If the House of Commons (said Mr Ponsonby, in supporting the motion) expected great concessions from the Catholics, they should at least begin by making small ones themselves. But it was evident, that veto or no veto, arrangement or no arrangement, the party in power were determined to concede nothing. To insinuate that concessions were refused, because no distinct offer had been made by the Catholics, was dissimulation and hypocrisy. Those who said so, had the words on their lips, but not the meaning in their hearts. All that was demanded was, to go into a committee on the subject. Would it be said, that the house ought never to go into the consideration of a petition like that of the Catholics, unless they were prepared to go the whole length of the claims of the petitioners? Let us contemplate the situation of Europe. The greatest warrior and politician who had ever lived,—a man whose ambition is as gigantic as his views,—sways against us the subservient energies of a people, ambitious like himself, and whose ruling national passion is to put England down, that they may reign the masters of the world. With this power to contend with, would it not be sound discretion to look to our own resources? and when a committee is required to inquire into the grievances of so great a share of our population, is it the answer of statesmen, to say to those who plead for the petition, "you are not empowered to make certain arrangements, and we will therefore not inquire into the propriety of conceding any thing?" Is it wise to tell the Catholics that they are to make all the advances, and then to sit silently and sullenly to receive them? The legislature ought to make the advances, for they possess the power of doing so; and, viewing the matter not as a theologian and a religionist, but as a statesman, it would be wise to do so. Force can never secure Ireland: It had been tried for centuries; and, at this very time, Great Britain is not more secure of Ireland than in the most troublesome times. To render her tranquil, her demands ought at least to be listened to.

Another parliamentary advocate for the Catholics, declared, in still stronger terms, his opinion, that the veto was not a necessary stipulation. This veto, said Mr C. Hutchinson, is a mere stalking horse,—the plea of desertion from the Catholic cause. On what ground was it required? Was the loyalty of the Catholic hierarchy impeached, or impeachable? He would challenge any man to produce a single instance of disaffection among the Catholic bishops;—an instance in which they had acted, or attempted to act, against the government. On the contrary, their fidelity to the state was so conspicuous,—their exertion in support of the government so signal, during the trying period of the insurrection, that they were denounced, among the leaders of the rebellion, as the Orange bishops—as strenuous advocates for the views of government. Why then demand any additional pledge of loyalty from such men? Mr Grattan's motion was negatived by a majority of 213 against 109.

Mr Brand's motion for parliamentary reform.

The friends of parliamentary reform were not discouraged by the defeat which Mr Curwen's bill had received in the preceding year. On the 21st of May, Mr Brand made a motion in the house for a committee to consider of measures proper to be adopted respecting a reform in the representation of the people. In a summary statement of his plan, he stated his objects to be, that parliament should exercise a right, which it certainly could constitutionally exercise, of disfranchising those boroughs in which the members were returned by the nomination of individuals, and, as the members of the house would be diminished in that proportion, to tranfer the right of returning such members to populous towns. In counties, he would leave the elective franchise as it now stands, with the freeholders, merely adding the copyholders to the number of the electors. He proposed to assimilate the mode of voting in Scotland to that in England. As to the state of representation in Ireland, he was not disposed to propose any change. He should, however, bring that subject under the consideration of the committee, if his motion should be successful. He proposed triennial parliaments, and although the disfranchised boroughs had, in point of right, no claim to compensation, he should, however, vote for their receiving it. In changing the duration of parliament, he foresaw immense difficulties, unless a concurrent change were to be made in making the returns. He proposed, therefore, that the votes should be taken by districts,† instead of the returns being made by districts. There was one remaining point to which it was necessary to call the attention of the house. The number of persons holding places and seats in that house, was an evil which required a remedy. He would not propose to exclude all persons who held offices, but all who held them without responsibility. The people, said Mr Brand, wish for a moderate reform; it is their right, and if it is refused, they will endeavour to assert it. There must be either a reform, or a military government.

The points and the facts so often asserted and denied, were largely discussed in this new trial of the question. The accustomed argument of the fate of France was not forgotten on this occasion, by the enemies of reform. In answer to this admonition, Mr Whitbread said, what has been the fate of other nations who neglected the means of national safety? Did Prussia reform? Did Austria redress the people's grievances? Why has Spain been the theatre of havoc and devastation? Were their miseries to be traced to the experiment of reform? Or rather, was it not the effect of the resistance with which their respective governments treated every proposition of redress and amelioration? Had Sicily reformed? and what, notwithstanding the liberal assistance of Great Britain, will be its fate, unless that government shall be wise enough to accede to the reasonable wishes of the people? Subjugated Europe had fallen, not because she made rash experiments on her systems of government, but by sanctifying every abuse, and pertinaciously refusing to accede to the just desires of the people. She destroyed the moral energies, and, though she placed arms in the hands of those who ought to be her defenders, there remained nothing of influence over their hearts, when brought in contact with the enemy. The motion was negatived by a majority of 234 to 115.

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† To exemplify this opinion, Mr Brand referred to the county which he represented (Hertfordshire). If there were four members to be returned, and if they were to be returned by districts, that would throw the whole of the representation into the four principal towns of the county. The freeholders of the town would uniformly prevail over the freeholders of the county, because they would almost always outnumber them at an election. This would be to commute the county for the borough election. But if the votes were taken by districts, it would save much expence, and favour the pretensions of many, who at present are deterred, by a consideration of the expence, from offering themselves as candidates. Nothing need prevent the sheriffs from taking the votes throughout the different districts, without subjecting the candidate to the expence of bringing up the freeholders from the extremities of the county to the place of election. The votes might also be collected throughout the different parishes in populous towns. Unless some such arrangements should be made, Mr Brand conceived that it would be impossible to establish triennial parliaments, without producing mischiefs of the most dangerous tendency.

Report of the bullion committee.

Among the prominent events of the session, it would be improper to omit mentioning the report of the bullion committee. The restriction of cash payments imposed upon the bank in 1797, have been noticed in the events of that year. Since that period, the paper money, not only of the bank of England, but of the country banks, had multiplied so rapidly; the value of that paper money had so much diminished in relation to the price of all articles of life; the market price of gold had risen so much above its mint-price, and coin and bullion had become so scarce, that these concurring appearances were naturally held in the general opinion, as cause and effect. It had been indeed predicted by many, that the dispensation from cash payments permitted to the bank, would produce the effect of depreciating paper by its abundance, and of raising the relative price of gold in proportion, by offering temptations to melt the coin, and to export both coin and bullion;—but these predictions were disregarded in 1797, by many who now thought more seriously on the subject,† or who did not imagine that the restriction act would be suffered to be so long in force. A committee during the last session, had been appointed to inquire into the high price of gold bullion, to take into consideration the state of the circulating medium, and to point out a remedy. The report of the bullion committee was given in on the 8th of June. They first inquire into the price of bullion, and find, that a guinea is worth about 23 shillings of paper money; and this degree of depreciation of paper currency is confirmed by the rate of foreign exchanges, which are from 15 to 20 per cent. against England, though the real exchange would at present otherwise be in her favour. "It results from this unnatural state of things, that while a good guinea can only be current at 21 shillings, and that a guinea too light to pass in currency, gains value by its deficiency, and is actually worth 22 shillings. It is impossible, therefore, that any gold coin should remain in currency; and the result is, that the public lose about two shillings on a guinea on their income and expenditure.

The quantity of country bank notes is stated by the committee to be greatly dependent on the quantity of bank of England notes in which they are payable. One of the witnesses estimates these country notes at twenty millions; but they are probably worth more than thirty millions, as the gold coin in circulation used to be estimated at that sum when there were only ten millions of bank of England notes, making the then circulation forty millions, besides country notes, at that time perhaps five millions. Forty-five millions must have been augmented to fifty-four millions, to produce a depreciation of 20 per cent. as at present, whereby the country bank notes appear to amount to about thirty-four millions, the bank of England notes being twenty millions in circulation; herein supposing the augmented rapidity of pecuniary transactions to balance the greater quantity of them, and that the same amount of circulating medium is now as necessary as in 1797.

In the report of the committee it is stated, that the only true and effectual protection to the public against an excess of paper currency, is the obligation on the parties who issue it to pay it in specie at the will of the holder; that, since the year 1797, when that protection was taken away by the bank-restriction bill, the bank have extended the circulation of their notes from ten to twenty-one millions; that the country banks have also very considerably extended the circulation of their notes; that this increase of the circulating medium enhances the price of every commodity, raises the market price above the mint price of bullion, and occasions the present unfavourable state of the foreign exchanges.

While these views of the bullion committee were supported in numerous publications, and became an object of general interest, the directors of the bank, and the advocates for the new system, contended, in opposite pamphlets, that the increased quantity of the circulating medium is no proof of its excess; that the increase of the circulating medium is a stimulus to the whole commercial world, and extends our capital; that the amount of the circulating medium is not greater than the public necessities require; that the amount of bank notes issued cannot operate upon the price of bullion, or on the foreign exchanges; and therefore, that all the evils complained of must he traced to other causes.

That the value of money in these kingdoms has decreased, or, in other words, that the price of every article has increased to an unprecedented degree within these few years, is a fact of general notoriety; and coupling this rapid change in the relative value of money and commodities, with the increased circulation of paper currency that has followed the bank-restriction bill, it will be difficult to consider them as having no bearing on each other. In the present state of things, the excess of bank notes cannot, as the governor of that incorporation asserted before the bullion committee, receive any check; for the directors will give the holder of a note nothing for it, except, indeed, a new note for an old one; and the demand for discounts furnishes them with the opportunity of replacing those that are paid in, by a constant succession of fresh ones. An excess of paper currency cannot be exported and employed in foreign commerce like specie, and therefore it is necessarily employed in the purchase of commodities at home. The greater amount of notes there is in the market to purchase these commodities, the price of them will gradually rise till the increased value of the things to be purchased absorbs all the notes in circulation. Nor is this evil confined to articles of our own growth and manufacture, but extends to our foreign commerce, by its influence on the foreign exchanges; for, when the currency of a country is depreciated, it will no longer purchase the same amount of foreign money as before, to be invested in foreign commodities; but such an increased amount of the depreciated currency must be given as will counterbalance the extent of the depreciation. Or, to put the case in the opposite way,—if a merchant on the Continent is offered a bill of exchange upon London, for which he is to receive bank notes not convertible into specie, those notes can only be invested in commodities here at an advanced price, and therefore he will only take a bill of exchange at such a depreciated rate as indemnifies him for the advanced price of the commodities. Thus, in consequence of this over-issue of paper currency not convertible into specie, individuals pay a higher price for articles both foreign and domestic; a heavy loss is sustained by government in every purchase made for the public service, and in the expenditure of the army and navy on foreign stations, all of which must be made good by additional taxes imposed at home. Hence, too, arises the temptation to melt down and to export specie; for gold, while circulated here as current coin, passes only at the mint price of L.3 : 17 : 10½ per ounce, but, melted down into bullion, sells for L.4, 12s. per ounce. In proportion as the exchange falls, the value of bullion rises; for the greater the loss on making remittances of bills is, the higher price will the merchant give for bullion as a substitute for bills of exchange.

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† Mr Huskisson, the great advocate for the resumption of cash payments, acknowledges that this was his own case.

In support of the theory laid down in the report of the bullion committee, statements have been given of the amount of the bank notes in circulation, with the rates of exchange at corresponding periods. In January 1795, the amount of bank notes in circulation was nearly thirteen millions, and the exchange between Hamburgh and London was from three and a half to six per cent. against England. In February 1797, the amount of bank notes in circulation was only 8½ millions, and the exchange between Hamburgh and London was between 6 and 7 per cent. in favour of England. By the last returns laid before Parliament, the bank notes in circulation were 21 millions; and the exchange between Hamburgh and London was L.16, 9s. per cent. against England. Statements have also been given, in order to shew that the quantity of bank notes in circulation affects the market price of gold. In February 1797, it was 9s. 7½d. per ounce below the mint price: as the bank increased their issue of notes, it soon rose above the mint price, and now it exceeds it by 15 per cent. Counter statements have been produced by the bank directors, with the view of shewing that the increased issue of their notes has not been followed by a correspondent change in the rate of foreign exchanges, and the difference between the mint price and the market price of gold. It is obvious, that these effects of an increased paper circulation, may be retarded, or even counteracted, by other circumstances than our excess of paper; but the preceding facts and reasonings afford strong grounds for presuming that such effects will, in course of time, inevitably follow.

It is laid down in the report of the bullion committee, that while the paper currency of a country is convertible into specie, the greatest depreciation in the rate of foreign exchanges that can continue for any length of time, is the amount of the expence of conveying bullion from one country to another; and the average expence of transporting it between Great Britain and the Continent of Europe, is stated, in the evidence before the bullion committee, to be 5 per cent. The actual depreciation is estimated, by Mr Huskisson, at 15 per cent.: if, then, the difference, or 10 per cent. and a corresponding increase in the price of all commodities, be considered as the effect of the present over issue of paper, it will be found that the bank restriction bill costs the public as much as the property-tax, or 12 millions per annum; and that the continuance of this restriction, while it thus oppresses the individual, does no benefit to the state.

The advocates for the bank, without denying the general correctness of the theory advanced by the bullion committee, contend, that it is not applicable to the present case, and that the high price of bullion, together with the low rate of foreign exchanges, ought not to be attributed to the increased issue of paper currency, but to an unfavourable balance of trade and payments, occasioned by the great foreign expenditure of government, and the unprecedented restrictions imposed by the enemy on our commerce to the continent. Mr Hill, (in his Inquiry into the Causes of the present high price of Gold Bullion,) says, "I am decidedly of opinion, that since the year 1797, we have drained England by foreign expenditure, of a very considerable part of the specie and bullion, which at that time remained in it; that though the bank restriction bill, by reducing the domestic demand, prevented us from being sensible of the deficiency for some years afterwards, yet our stock is now reduced so low as to be inadequate to the limited demand which at present continues for it; and that this real scarcity of the precious metals in the country, is the genuine cause of the present high price of bullion." Mr Cock, treating of the same subject, observes, "As therefore we are not exporting gold from the cheap to the dear, but from the dear to the cheap country, all the usual observations about the expence of transmission, and the commonly adopted theories on the subject, are inapplicable to the case, which is evidently an unnatural one, occasioned by unnatural circumstances; and those arising, not out of the stoppage of payment in specie at the bank, but the stoppage of importation of British goods on the continent by Bonaparte." Mr Jasper Atkinson, in his pamphlet on the same subject, says, "It is in evidence before the committee, that the unfavourable situation in which we stand, both in respect to our metallic currency and our foreign exchanges, arises out of the state of our payments abroad; and yet they make no mention of such a cause in their remedial recommendation." Some of the arguments of the advocates of the bank, prove too much. When those advocates assert, that the indefinite extension of paper circulation is a real blessing, they go to prove that you cannot give too much food to adventurous speculation; that you may with justice reduce to beggary every person of a fixed income in the kingdom. They would, in short, justify the assignats of France, or the swindling system once proposed by John Law. These assertions, which we have now quoted, are more respectable. They are, to a certain extent, true, but what is true in them proves *too* little. It may, and ought to be admitted, that an unfavourable balance of trade and payment, independently of paper issues, have contributed to aggravate the high price of bullion; but they do not prove, that the restriction of the bank payments has not also had its full share in the generation of the same evil, and has actually occasioned more than any other assignable cause, the unfavourable exchange with foreign countries. Their arguments do not invalidate the justice of the recommendation offered by the bullion committee, that the bank should resume their payments in cash. It appears also, from the report of the committee, that since the check on paper issues has been removed, the bank have not only doubled the number of their own notes, but have given rise to a country paper circulation, still more extensive. Before the restriction bill, the bank, we believe, never discounted bills to any banker; and while they adhered to this rule, no banker could trade upon artificial capital. Since the passing of the act, many of the London bankers have opened discount accounts with the Bank. This has contributed to increase the number of country banks. Since 1797, the number of country banks has increased from 230 to 721. The immense profits which the bank directors make by these discounts, prevents them from being scrupulous about the real solidity of the traders to whom they extend their discount. The public, in the mean time, is not more protected from the over-issue of those 721 country banks, than against the over-issues of the Bank itself. The Bank of England is the fountain head from which the country banks are supplied, and when the country banks are called upon to change their notes for cash, they give out Bank of England notes.

The cause of the depreciation of paper has been strenuously disputed. That its abundance causes great depreciation, and that such depreciation must increase with the increasing issues, until the bank shall pay in gold, has been distinctly proved. We do not deny that the state of our commerce may have contributed *also*, though in a lesser degree, to augment the scarcity of bullion. The existence of depreciation is not, however, disputable, whatever be the cause.

Mr Bosanquet himself, has, in his second edition, given up completely the question of depreciation, in reference to our legal tender; and without any allusion to it as a temporary occurrence, he proposes an entirely new standard of value, from a comparison with which he infers that our currency is not depreciated. He proposes that the interest of L. 33 : 6 : 8 in the three per cent. stocks, should be the standard measure of the value of our currency. This is in effect saying, that a one pound note of the Bank of England is to be the standard by which we are to judge of the depreciation of that same one pound note. To this bold and alarming doctrine, it is to be trusted the public will never submit. If the bank directors, forsaking the metallic standard of value, should continue to act on the principle that a pound note can never be depreciated while it continues to be the interest of L 33 : 6 : 8 in the three per cent. stocks, there is no excess nor depreciation of paper, no rise in the price of provisions, no extent of mischief from which the public can be secure. The forgers of coins, who are whipt or sent to Botany Bay, for what in the cant phrase is called diminishing the scarcity of half crowns, would be harmless, compared to the diminishers of the scarcity of paper, who should carry this principle into full practice.

The committee conclude their report, by suggesting, that the restriction on cash payments cannot safely be removed at an earlier period than two years. Adverting to the circumstance, that as the law stands at present, the bank would be compelled to pay in cash at the end of six months after the ratification of peace; but the committee are of opinion, that if peace were to be immediately ratified, it would be hazardous and impracticable immediately to enforce the standing law. Two years they think ought to be given in the event of peace, but not more, though the war should continue so long. Those who have exhorted most strongly to the repeal of the restriction bill, have not denied, that, exclusive of the clamours which would arise from those who are selfishly interested in the profits of the bank, the return to a better system must be made with caution. The remedy of the evil is acknowledged to require caution by those who most strongly advise it. Mr Blake himself expresses a doubt, whether the legislature may not be under the necessity of receiving, rather than proposing conditions. Such an influence have the directors acquired, not merely over the finances of individuals, but of government itself, that at one time they extorted a promise from the prime minister (Mr Pitt), that no future loan or advances to the emperor should be resolved on, without previous communication with them. On this occasion they controuled the minister in the most important of political operations, to protect themselves from an embarrassment brought on by themselves, by their imprudent advances to government. Among the remedies proposed, by those who have written on the subject, it has been suggested, to oblige the directors every successive half year, to diminish the average quantity of their notes in circulation by half a million, and to continue this diminution till the market price of bullion be restored to its mint price; then the resumption of cash payments might take place without the dangers apprehended from a sudden diminution of the currency. Another plan has been advised, viz. to begin the remedy by obliging the bank to pay a small percentage upon its notes, at the option of the holder, and increasing this percentage gradually.

The expediency of establishing a new chartered bank has been also suggested, with much appearance of propriety. The power of the bank, to be responsible in specie for all their notes at present in circulation, seems to be more than doubtful. Their attempt to make cash payments, if it failed, might produce very serious consequences, both to public and private credit. Nor does it appear to be an unfounded suspicion, (if we may judge from the language of the bank directors and their advocates,) that sooner than submit to the injunction of government, (were it enforced at the end of two years,) to resume cash payments, they would employ the interim in making still larger issues of paper, and thus protect themselves from being called to attempt what would thus become notoriously impossible. The establishment of this new chartered bank, would not only defeat such a purpose, if it were cherished, but it would be compatible with the greatest caution, in proceeding with regard to the repeal of the restriction bill. The provisions of that bill might be extended to both corporations, so long as it might be thought expedient to continue the act in force; and daily or weekly payments might be directed to be made between the two banks for the balance of their respective notes in each others hands, either in specie or in bullion, at the mint price. This injunction, and a clause forbidding any person concerned in the one bank from being concerned in the other, would preserve a competition between them, and prevent their forming any combination against the other for their mutual advantage. Although it is evident, that the proprietors in such a new undertaking, would act under one disadvantage in the first instance, that they would be obliged to pay interest to the Bank of England for the notes in which they subscribed their capital; yet if the legislature patronized the New Company, this disadvantage could be soon overcome, and would be readily subscribed to.

By what we hear and read on this subject, the project of a new bank seems to be the remedy most likely to be tried in the present crisis.*

The combined British and Portuguese army, which had taken up a line of positions on the eastern frontier of Portugal, towards the close of 1809, continued stationary in the early part of the following year. A division of this army under Major General Hill, occupied the frontier line to the south of the Tagus, while the main body extended from the right bank of that river to the Douro. The fortress of Almeida was garrisoned chiefly by the Portuguese militia, under a British governor, Major General Cox; the light troops and some cavalry, under Brigadier General Crawfurd, were advanced in front of that fortress, and patroled as far as Ciudad Rodrigo in Spain. In the mean time, the French, consisting of three corps, under Ney, Junot, and Regnier, and commanded by Marshal Massena, were assembling at Salamanca, and on the frontiers of Portugal. Their numbers most probably amounted to 80,000 men. The allied army, when concentrated, did not exceed 60,000, exclusive of the Portuguese militia and ordenença, the greater part of which were in the northern provinces with General Francisco de Silveira, and at Oporto and Coimbra with Colonels Trant and Millar.

Siege of Ciudad Rodrigo, June.

The campaign of 1810 commenced with the siege of Ciudad Rodrigo, by two corps of the French army, which invested the place on the 11th of June. On the night between the 15th and 16th the trenches were opened, and in a few days the second parallel was completed. On the 25th at night, the besiegers opened their fire, and on the 10th of July the place surrendered. However valuable the place might be, as an advanced post to the allies, Lord Wellington did not judge it a sufficient object to risk a general action for its relief. Of his Portuguese troops, composing nearly one half of his army, Lord Wellington had not sufficient experience to be assured of their steadiness,—the enemy was besides superior in cavalry, and the scene of action must have been upon plain ground. After the fall of Ciudad Rodrigo, the light division under General Crawfurd, consisting of nearly 5000 men, remained between that place and Almeida. On the morning of the 24th of July, they were attacked by a corps of the enemy greatly superior in numbers, which obliged them, after a gallant defence, to retreat from their position across the bridge of the Coa. On the retreat of this advanced corps, the fortress of Almeida was completely invested, and the same day was summoned by General Loison to surrender. On the 15th of August the enemy's trenches were opened; in nine days, the second parallel was opened within 150 toises of the place, and on the morning of the 26th the hostile fire commenced from 65 pieces of cannon, which was returned from the fortress till four in the afternoon. At seven, the principal magazine in the castle and two smaller ones exploded, by which the ramparts were greatly injured, the ammunition was lost, and 500 soldiers killed. Finding resistance unavailing, governor Cox surrendered the fortress on the night of the 27th.

which surrenders to the French.

Almeida surrenders to the French.

In the interval between the commencement of the siege of Ciudad Rodrigo and the fall of Almeida, the corps of General Regnier (the left wing of the French,) was stationed on the frontiers of Spanish Estremadura, to the south of the Tagus, and was held in check by the division of General Hill, which occupied Portalegre, Elvas, and the frontier line of Alentejo. On the surrender of Almeida, Regnier crossed the Tagus with the view of turning Lord Wellington's right flank, and occupying the road to Lisbon by Castello Branco. This movement General Hill was able to anticipate, and crossing the Tagus at Villa Velha, possessed himself of the important road at that place. On the 16th of September, the French army broke up from Almeida, taking the direction of Guarda and Celerico; afterwards crossing the Mondego by the bridge of Fornos, the three corps of Ney, Junot, and Regnier, under their commander in chief, united on the 21st at Vizeu, where they halted for two days to bring up their artillery, which had been delayed by the badness of the road. Colonel Trant, who commanded a body of Portuguese militia and ordenença, attacked an escort of the reserve artillery, and made some prisoners, but was obliged to retire towards the Douro. The British cavalry, under General Cotton at Celerico, withdrew from that place, following the route of the combined army, which had retired by the Val de Mondego to the position of the Sierra de Marcella, behind the river Alva. The enemy pushed on his advanced guard from Vizeu on the 21st, as far as Santa Comba Dao, at the junction of the rivers Criz and Dao. Brigadier General Pack, who had been stationed at this point with his brigade, after destroying the bridges over these rivers, retired across the Criz, and joined General Crawfurd at Mortagao. On the 25th, the enemy crossed the Criz with two corps of his army; Generals Crawfurd and Pack retreated to the position of the Sierra de Busaco. As it appeared that the intention of the enemy was to force this position, and by that means to possess himself of Coimbra, Lord Wellington made a movement to his left, crossing the Mondego with the whole of his force, except one brigade of British which he left to cover his right flank, and a division of British and Portuguese cavalry which remained in front of the Alva, to keep the enemy's cavalry in check.

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* This measure, Mr Marryat (in his Thoughts on the establishment of a New Chartered Bank,) observes, is not open to the objections that have been urged against putting specie into general circulation in the present state of things, that the little which we have left would immediately be sent out of the country, and that we should be obliged to revert to paper currency, after having destroyed its credit; while at the same time it appears more likely, that excess would be checked, if the circulating medium of the metropolis, instead of consisting wholly of the notes of one establishment, (on whose issues there is no controul,) consisted of the paper of two establishments, both whose issues were controuled by the necessity of settling with each other in a common medium, and the check given to their paper would be felt by all the subordinate banks throughout the kingdom.

Battle of Busaco.

At six in the morning of the 27th of September, the enemy made two attacks on the position of our whole army, the one on the right, the other on the left, of the highest point of the Sierra de Busaco. They were repulsed in both quarters. The loss of the allies in killed, wounded, and missing, was above 1200. The loss of the enemy in killed, wounded, and prisoners, was computed in our reports at 10,000. The French gave it out at 1100; and, by our own account, the prisoners whom we took did not exceed 386. The French also tell us, that their whole army was not engaged, but only two brigades of it; and that, in fact, they amused Lord Wellington with this portion of their army, while they came round with their main force to get between his rear and Lisbon. The immediate consequences of this victory at Busaco, which was announced by the firing of the Park and Tower guns, by no means confuted this last assertion of the enemy.

Massena did not renew his attack on the 28th, except by "*the fire of his light troops*;" but he moved a large body in such a direction, as induced his lordship to withdraw from the mountains of Busaco, and to take his army in a southern direction, that is to say, nearer to Lisbon, to his strong holds, his shipping, and his reinforcements. His lordship adds in the same dispatch, that the enemy's communication with Almeida was cut off, and that Massena possessed only the ground on which he stood. The Spaniards, too, according to Lord Wellington's dispatches, dated Coimbra, 30th of September, were collecting an army of 20,000 men in the north; and the armed peasantry, with the Portuguese regulars, under Colonels Millar and Trant, were operating on Massena's communication, whose men were deserting by hundreds, and dying of hunger. These were cheering statements. Nevertheless it appeared, by his lordship's dispatches, dated the 6th of October, that our army had retired gradually, first to Pombal, next to Leyria, and next to Alcobaça, having skirmished daily with the French during this retreat of 70 miles, in the space of 6 days. The retreat of the combined army drew after it the whole of the enemy's disposable force, except such as were left to guard the sick and wounded at Coimbra. Colonel Trant finding his communication with the combined army cut off, retired in the direction of Mialhada, where he expected to have been joined by the corps of militia and ordenença, under General Millar and Col. Wilson; but finding that these corps were delayed in the vicinity of Busaco for want of supplies, he formed the resolution of advancing alone, in order to dislodge the French who remained at Coimbra. Reaching that place with a slight resistance from straggling parties of the enemy, he made prisoners to the number of 5000, principally sick and wounded, and captured between three and four thousand muskets.

Lord Wellington took up his first line of defence, after his long retreat from Busaco, in a strong position between Alhandra and Torres Vedras. From this position he afterwards retired, throwing back his left flank by Mafra, and occupying a range of mountains which extend from Alhandra to the coast near Mafra. In this position the passes of Bucellas, Cabecha de Maritachique, and Mafra, are the principal features of the country; and through each of these points a road leads from Torres Vedras to Lisbon. These passes are extremely strong by nature, and were further strengthened by redoubts and batteries. The right of his position was covered by the Tagus, and a number of gun boats were stationed on that river, for the purpose of annoying the enemy if he should make an assault in that direction. The enemy remained inactive in front of this position for the space of a month, his right being on Sobral, and his left flank at Villa Franca. Abrantes and Peniche, in his rear, were garrisoned chiefly by the Portuguese militia, which, on several occasions, intercepted his foraging parties, and took some prisoners. Lord Wellington was joined, a short time after he had taken up his line of defence, by a Spanish corps of about 9500 men under the Marquis de Romana. In this state the contending armies continued until the 14th of November, when Marshal Massena retired from his right, by the road of Alemquer towards Alcoentre, and from his left by Villa Nova, continuing his retreat to Santarem, where he halted and took post. The allied army broke up from its position on the morning of the 15th, following the march of the enemy as far as Cartaxo, where Lord Wellington established his head-quarters. In these movements about 400 prisoners were taken from the enemy. General Hill's corps, at the same time, passed in boats across the Tagus at Valada. By this retreat, Massena secured the passage of the Zezere; the power of withdrawing into Spain by the line of Castello Branço; a junction with his expected reinforcements; and a country not yet exhausted, which afforded support to his army. The allies had clearly retained, at the end of the campaign, a position which the French could not force, at least in the present circumstances, when the winter rains had set in, to which the French, if they had not retreated, would have been exposed without shelter, in a country which afforded no supplies, while the allies were securely hutted, and obtained supplies of provisions by sea. A desultory resistance to the French was kept up in several parts of Spain, throughout the provinces of Arragon, Catalonia, Valencia, and Murcia; but the enemy crossed the Sierra Morena once more without opposition, and pushed on their conquests to the isle of Leon.

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An unfortunate attempt was made by the British, in the month of October, to make a diversion on the Spanish coast. The object of the enterprise was to take the castle of Fuengerola, and afterwards to drive the French out of Malaga. Lord Blaney sailed for this purpose with 300 British soldiers, 400 foreign deserters, and the Spanish regiment of Toledo. After a vain attempt to effect a breach in the fortress with some gun boats and field pieces, the assailants were surrounded by a superior force, the foreign deserters went over to the enemy, and a retreat was with difficulty effected, by the aid of the flank companies of the 82d regiment, who arrived to assist in covering it. The blame of the expedition was ungenerously ascribed, by some of the courtly newspapers, to Lord Blaney's perseverance in attacking the castle of Fuengelora. The truth is, that the force sent upon the enterprise was utterly inadequate to the object; and such an apology, affecting the name of a gallant officer, wounded and a prisoner in the hands of the enemy, could only be devised by those who were interested in covering the true causes of its failure.

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The year was distinguished by colonial conquests, both in the East and West Indies. An expedition sailed from Martinique, against Guadaloupe, on the 24th of January, under the command of Admiral Cochrane and General Beckwith. General Ernouf, the French governor of the invaded island, had been apprised of the intended attack, and had concentrated all his force at Basse Terre. The first division of the British, under the commander-in-chief, landed at the village of St Mary, and soon after advanced towards Trois Riviers; the second division landed to the north of Basse Terre, under General Harcourt. After some skirmishes, a general engagement took place on the 23d of February, in which the French were defeated with the loss of 500 men. In the evening of the same day, the reserve, under General Wade, (who appears to have acted with uncommon skill and activity in getting at the enemy, by a route less than half the distance of the intended one, and whose conduct seems to have decided the success of the enterprise,) turned and beat the enemy's left in the mountains. Ernouf's position became so critical, that on the 24th of February, he hoisted flags of truce, whilst our troops were advancing. Next morning commissioners were appointed on both sides, and a capitulation was agreed upon, by which the garrison were to have the honours of war, and to be sent to England as prisoners of war until regularly exchanged. This service was performed in the space of eight days, with the loss of less than 300 killed and wounded, and deprived the enemy of his last West Indian colony.

Amboyna taken by the British.

In the same month, and happily with inconsiderable bloodshed, the rich island of Amboyna, one of the Moluccas, was captured by a squadron of ships, under the command of Captain Tucker. Whilst Captain Tucker cannonaded the enemy's shore, forts, and batteries, from the sea, a selected body of 400 soldiers and seamen were landed, who stormed the batteries, and crossed the precipitous heights that intervened between the shore and town of Amboyna. They then summoned the town to surrender; and the garrison, consisting of 1000 Javanese troops, and 130 Europeans, capitulated to those hardy assailants.

Isle of Bourbon taken by the British.

A still more important acquisition was made, in the capture of the island of Napoleon, (lately Bourbon,) in the same quarter of the world, by a squadron of four ships under Captain Rowley, and a force of 3650 European and Indian troops, under Lieutenant Colonel Keating. On the 7th of July, a partial landing was effected; but, owing to the violence of the surf, the remainder of the force was not put on shore till next day, when Colonel Keating pushed on to the attack of the capital, St Denis. Every thing was in readiness, and the assault would have taken place in less than half an hour, when a suspension of arms was demanded by the enemy. A capitulation ensued; and thus, with a trifling loss, a population of 100,000 souls was added to our empire. The enemy, 1500 strong, surrendered prisoners, but were allowed the honours of war. The laws, customs, and property of the inhabitants, were to be insured to them. Our whole loss in the expedition amounted to 97 men.

Isle of Banda taken by the British.

To these acquisitions was added the island of Banda, which is the principal of a cluster of small islands, lying to the east of the Celebes, in the East Indies. Its inhabitants, with those of its dependent islets, are supposed to contain about five thousand. Their chief produce is nutmegs, of which they yield enough for the supply of the whole world. (See BANDA.) Three British frigates arrived off Banda on the 8th of August. At night, the boats, containing 390 men, commanded by Captain Cole, pushed for the shore; but, owing to the tempestuous weather, only 180 reached the appointed rendezvous. After waiting some time for the boats that were missing, they boldly resolved to push ashore. The badness of the weather was now of service, for the boats grounded undiscovered, in a heavy squall of wind and rain, within 100 yards of a battery of ten twenty-four pounders, which was stormed; the sentinel was killed by a pike, and sixty men disarmed without the discharge of a piece. The storming party then proceeded to Fort Belgica. The alarm bugles were then sounding, and the enemy reserved their fire till the British got close to the walls. The scaling ladders were rapidly applied, and mounted with extraordinary celerity, notwithstanding a smart though ill-directed fire from the citadel. The lower works being gained, the ladders were placed against the inner wall, when the enemy fled in all directions, leaving the commandant and ten men killed, and two captains and 30 men prisoners. The guns near the ladders having been deserted by the cowardice of the enemy, the British found themselves in possession of the citadel, without the loss of a single man. The citadel commanded the town and Fort Nassau. A

Isle of France taken by the British.

flag of truce was dispatched to the governor, who at first refused to capitulate; but a shot from Fort Belgica, and a threat of storming the town, produced an immediate and unconditional surrender. Seven hundred disciplined troops, and three hundred militia, grounded their arms to this handful of Britons. About I..400,000 worth of spices were found by the victors. But the capture of the Isle of France forms by far the most important feature of success in the year. This place had been a nest for the enemy's marauders, and enabled their privateers to lord it over the seas of India, whilst their greatest navies durst not venture from the harbour in those of Europe. Admiral Bertie commanded the squadron which sailed against this settlement: the army was commanded by General Abercrombie, son of the victor of Egypt.

The armament arrived off the island on the 28th of November. On the following morning, a part of the troops under Major General Warde landed without opposition in the bay of Maypon, the enemy retiring on their approach. Lieutent-Colonel Smith, with his brigade, followed next morning, and gained the open country without much opposition; some shots only having been fired by a small picket, by which a few men were wounded. The army moved forward the next morning, and took up a position about five miles from Port Louis. Falling in with a corps of the enemy in a strong position, with field pieces, our advanced guard, under Colonel Campbell, charged them with the greatest spirit, and compelled them to retire. The next morning, while making dispositions for a general attack, the enemy asked and obtained terms of capitulation. The garrison, naval and military, with their effects and baggage, were to be sent to France, without being considered prisoners of war. The inhabitants were to preserve their laws and religion, and property to be respected. A 52 gun ship, 5 frigates, three 30 gun prison ships, a sloop of 22, and two brigs of 14 guns, a schooner, and several gun-boats, with 28 merchantmen, were made prizes in the harbour.

The French make an unsuccessful attempt upon Sicily.

In September, the enemy made an abortive attempt on the island of Sicily. At daylight, on the morning of the 18th, a great body of King Joachim's flotilla appeared to be preparing an attempt to land between Messina and the Faro. While their movements engaged the attention of the main body of the British force, a debarkation was effected by a detachment near St Stefano. This corps consisted of 3500 Corsican and Neapolitan troops, who had crossed the straits in forty large boats, and gained the Sicilian shore before the dawn. Upon the first alarm, General Campbell repaired to the menaced quarter, where he found the German riflemen engaged with the enemy, and two other regiments occupying the post of Mili to prevent the advance of the French upon Messina. At day-break, he perceived the enemy already on the heights, and extending from thence to the beach. By a brisk attack, they were speedily put to the route; and besides a number of killed and wounded, 900 were intercepted in their retreat to the boats, and made prisoners. On the side of the British, only three private soldiers were wounded.

When parliament assembled on the first of November, ministers were obliged to announce very melancholy intelligence respecting the state of his majesty. The houses had been prorogued to that day, and it was known to have been the royal intention to extend the prorogation, but from the king's state of mind, the Lord Chancellor had found it impossible to procure a new signature. The Chancellor of the Exchequer stated, that the symptoms of his majesty's disorder were exceedingly mild; that the strongest expectations of his speedy recovery were entertained, and made a motion, which was readily agreed to, that the house should adjourn for a fortnight.

During this first adjournment, the public anxiety was deeply fixed on the daily bulletins respecting the sovereign's health; but, from these vague announces, it was difficult to form an idea of his real situation. General and indistinct as they were, however, and each successively referring to a former one, as vague as the succeeding, they conveyed, upon the whole, an unfavourable expectation.

At the meeting of the 15th, the Chancellor of the Exchequer proposed another adjournment, and carried it in spite of the strong remonstrances of several members of the opposition, who contended, that the adjournment ought to be only from day to day, and that it was highly improper during a period of war, expences, danger, and difficulty, to remain, without consulting for the appointment of a new executive.

On the 29th, the report of his majesty's physicians was submitted to the House of Commons, as it had been given before the Privy Council. Mr Perceval still holding out hopes of recovery, proposed a third adjournment for a fortnight; declaring, however, that unless at the expiration of that time there was a prospect of speedy convalescence, he should not propose any farther delay to taking parliamentary steps for supplying the deficiency of the regal power. After considerable opposition, the adjournment was carried as proposed.

On the 13th of December, committees were appointed to examine the king's physicians. The examination took place on the following Monday. All the physicians agreed in confident hopes of his majesty's ultimate recovery; but none of them could predict the probable duration of the malady.

On the 20th of December, the commons resolved themselves into a committee of the whole House, to consider the state of the nation; when Mr Perceval produced his plan of the regency, of which, the first important feature to be considered, was the appointment of the regency by bill, (not by address to the Prince of Wales,) conformably to the precedent of the proposed regency in 1788. It was a point understood on both sides, that the Prince of Wales was to be the sole regent; but, in the debates which had already taken place, the opposition had taken the same ground as in the former question of the regency in 1788, and proposed the immediate measure of conferring authority on the Prince by address. Mr Perceval, anticipating the arguments for this proposal, contended, that the main objection to the procedure by bill, was equally applicable to the other mode. The house, it had been asserted, could not pass a real bill, because it could not legislate without the concurrence of the king, as well as of the upper house. To proceed by address, he maintained, would still be to legislate. Suppose the house should address his Royal Highness the Prince of Wales to assume authority, What was that authority? It was not the authority of a king, which was clear and distinct—it was that of a regent, which was undefined, and must depend upon circumstances for its limits or extension. But supposing that the office of regent was intelligible, and was defined by law in its rights and duties, What would be the regent's first act after his appointment? The calling together of his majesty's parliament. How could he call them? Would it not be by authorising the individual who happened to be in possession of the great seal, to put that seal to some commission, either authorising the regent himself, in the name of his majesty, to open the parliament, or authorising commissioners appointed by the regent, for that purpose. Not a single legislative act could be accomplished by the regent without the use of the great seal. The houses, it is true, would not directly command the great seal to be used, but they would, even in the procedure by address, authorise an individual to command it to be put. Therefore, the houses would legislate in the one mode of procedure as well as in the other. The gentlemen on the opposite side (Mr Perceval continued) propose to transfer the whole regal authority by a single vote. Bnt provision is to be made for the eventual restoration of his majesty to the exercise of his power when his health shall return; and in no way can the provisions for that resumption, and the restrictions necessary to be laid on the regent, be so well made as in proceeding by bill. The leaders of opposition contended, that the procedure by address excluded no limitation or provision for the king's resumption of authority, which parliament might choose to embody in such an address. "What reason, they asked,* is there for supposing that his Royal Highness will refuse the limitations that shall be judged necessary, because they are stated in an address instead of a bill. Lord Somers, and the most distinguished constitutional patriots, did not think there was any danger in proposing the necessary limitations in an address to the Prince of Orange to fill the throne, instead of a bill; and there is no more danger of the Prince of Wales refusing the present offer, than of the Prince of Orange at a former period. The precedent of the proposed regency in 1788, they deprecated as unconstitutional, and distinguishing between restrictions which should fetter the executive in times so full of peril, and the necessary regulations for enabling his majesty to reassume his power at a proper period, they proposed, as an amendment, that his Royal Highness should be immediately addressed to take upon himself the powers of regent." The present question, we think, might be reduced to two capital points, substantial expediency, and legal or constitutional form. With respect to the first, it was strongly urged, in the present case, as it had been urged twenty years before, that the powers which it is salutary to attach to monarchy, should be equally allowed to the regent as to the actual monarch. The regulations with respect to time, the provisions which shall enable the absent sovereign to return to power, are essentially to be distinguished from limitations of the regal power. If this argument of upholding the executive in equal prerogative during a regency as at other times, had any force in 1788, it had certainly additional force at a crisis of war, danger, and difficulty—a time, too, at which the heir apparent, if ever fit for the exercise of power, was at an unexceptionable age. With respect to the objection of informality being equally applicable to procedure by address as by bill, the arguments of the Chancellor of the Exchequer appear to be sophistical. Parliament, in proceeding by bill, clearly legislates without the third estate; in the procedure by address, they do not. They authorise, indeed, a person *to authorise* the great seal to be used—but that is not using it themselves.

The moment a regent is appointed, a king to all intents and purposes is appointed, and the order of that regent, in the king's name, to use the seal, is not a fiction. It is an exercise of royal authority. The regent is *protempore* king. He uses the king's name not as a fiction, but as a reality. He is, in the eye of the law, the king, from the time he has accepted the address. He has a discretionary veto upon the proceedings of parliament. But when parliament proceed by bill, they make themselves *pro-tempore* both to the first, and second, and third estate. It is said that the first act of the regent, after being appointed by address, would be signing the king's consent to his own appointment, by desiring the chancellor to affix the great seal to a commission. To this it should be answered, that the substance of royalty has already passed to him, and he signs that consent in the name of the king: but he is already king himself for the time; he is the executive; he puts the executive seal to the consent of the royal power which he himself represents, not to the consent of the afflicted individual, who ceases to be king during the period of his malady. Let us examine the difference between the regent giving assent to the act of parliament which calls him by address, and the act which appoints him by bill. In the latter instance, the bill is passed without any executive power. In the former instance, an executive power, not a dead seal, but an active and real will, a will essentially royal, is created to complete the act of parliament. In defence of the restrictions of the regency, it has been said, that a temporary regent should not have the power of extending his influence beyond the period of his regency, *i. e.* by creating peers. By the same argument it should be admitted, that a king should not have the power of creating honours or emoluments which can survive himself. Having carried the point of appointing the regency by bill, the minister proceeded, on the 31st of December, to propose the restrictions to be imposed on the power of the regent. Four resolutions to this effect were carried, by majorities so

Restrictions upon the regent.

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* Mr Ponsonby's speech on the 20th of December 1810.

Restrictions upon the regent.

small on the side of ministers, as to mark an anticipation of their declining. The substance of the first resolution, was the expediency of his Royal Highness the Prince of Wales being appointed regent; of the second, to restrain him from creating a peerage in any case, except as a reward for some important military or naval achievement; of the third, to prevent him from granting any office in reversion, or any office, salary, or premium, except such offices as are by law required to be granted for life, or during good behaviour. The substance of the fourth resolution was to vest in trustees, whatever part of his majesty's property as was not already so vested.

On the first of January 1811, the minister proposed a fifth resolution respecting the royal household, in which he was left in a minority. The resolution, as amended by the opponents of ministry, was, that the care of his majesty's person during his illness should be committed to the queen, together with the sole direction of such portion of his majesty's household, as should be deemed suitable to a due attendance and regard to his royal person. †

The other most important articles of the regency bill were in substance as follows:

Substance of the regency bill.

Her majesty was to have a council, to assist in the discharge of the trusts committed by the act to her majesty.

Her majesty's council may examine the physicians, and others in attendance on his majesty, upon oath.

Her majesty's council shall meet at stated times, to declare the state of his majesty's health, and transmit a report to the president of the privy council, who shall publish a copy in the London Gazette.

Her majesty and council are eventually to notify his majesty's restoration to health, by instrument sent to the privy council. After such instrument has been received and entered by the privy council, his majesty may, by sign manual, require the privy council to assemble.

If his majesty, by the advice of his privy council, shall signify his royal pleasure to resume the personal exercise of his authority, and require a proclamation to that effect to be issued, the powers of the act shall cease.

In case of the death of the regent, or her majesty, or the resumption of the royal authority by his majesty, parliament, if then adjourned or prorogued, shall meet; or if dissolved, the members of the last parliament shall meet. Members of the two houses so meeting, shall be deemed the two houses of parliament; but not to continue to sit longer than six months.

The election of members is to be declared void, by appointment to office by the regent, or her majesty.

The debates on the bill occupied both houses till the end of the first week of February 1811, at which period his Royal Highness entered upon his office of regency.

In concluding our view of public affairs at the close of 1810, we regret that we cannot record the termination of our dispute with the states of America. The orders in council, as far back as November 1807, had put an end to all neutral commerce, except by licence from England. By way of retaliation for these new and additional restrictions, Bonaparte issued from Milan, in the December of the same year, his decree, which bears the name of that place; and as the British orders had declared, that they should be continued in force till the Berlin decree was revoked, so this decree from Milan declared, that its restrictions and penalties should remain in force till the orders in council should be revoked. Each of the belligerents informed America, (unhappily now the only neutral nation,) that they enforced the measure of retaliation, not from hostility towards her, but in self defence. Each of them desired America to compel their enemy to respect her flag; unless she did so, they declared that they must enforce their retaliation. America protested against the grounds of justification taken up by both parties: she declared that both had violated her rights; but she at last determined to submit, for the present, whilst she endeavoured to prevail upon one party or the other to give way first, and to revoke their orders or decrees. After long and fruitless efforts to this effect, she passed, on the first of May 1810, an act, in which she provided, that if either Great Britain or France should, before the 31st of May 1811, revoke, or modify her edicts so that the neutral commerce of America should be no longer violated, the fact should be declared by the President of the United States by proclamation; and that then, if the other nation should not, in three months from that time, revoke or modify her edicts in like manner, the non-intercourse act should be revived against that nation. On the 5th of August 1810, the French minister for foreign affairs communicated to Mr Armstrong, the American minister at Paris, that the decrees of Berlin and Milan were revoked, and that, from the 1st of November 1810, they would cease to be in force; it being understood that, in consequence of this revocation, the British should revoke their orders in council, and renounce the new principles of blockade which they had attempted to establish. Mr Armstrong having communicated this notification to Mr Pinkney, the American minister in London, the latter wrote, on the 25th of August 1810, to Lord Wellesley, our secretary of state for foreign affairs, informing him of what had been done in France, and at the same time observing, that he took it for granted that the revocation of the British orders in council would follow as a matter of course, and that he hoped to be able to announce to his government that such revocation had taken place. Lord Wellesley's answer was as follows: "I have the honour to acknowledge the receipt of your letter, under date the 25th instant. On the 23d of February 1808, his majesty's minister in America declared to the government of the United States, 'his majesty's earn-

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† The original clause moved by Mr Perceval was, that, for a time to be limited, her majesty should have the power to remove and to nominate and appoint such persons as she should think proper, to the several offices in his majesty's household; and to dispose, order, and manage all other matters and things relating to the care of his majesty's royal person, during the time foresaid.

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est desire to see the commerce of the world restored to that freedom which is necessary for its prosperity, and his readiness to abandon the system which had been forced upon him, whenever the enemy should retract the principles which had rendered it necessary. I am commanded by his majesty to repeat that declaration, and to assure you, that, whenever the repeal of the French decrees shall have actually taken effect, and the commerce of neutral nations shall have been restored to the condition in which it stood previously to the promulgation of those decrees, his majesty will feel the highest satisfaction in relinquishing a system which the conduct of the enemy compelled him to adopt." The Americans were dissatisfied with this answer, because, in an answer to a direct act of the French government, we only gave a conditional promise. In February 1808, our minister in America had declared, in the king's name, to the government of the States, that his Britannic majesty would readily follow the example, in case the Berlin decree should be rescinded, or would proceed *pari passu* with France in relaxing the vigour of our measures. The Americans asked, if this was shewing a readiness to follow the example of France, in restoring to America the enjoyment of what we acknowledged to be her just rights, and only infringed upon by necessity? The motive of our government might, perhaps, be distrust of France; yet, independent of the circumstance of our national faith being pledged to keep pace in retractation with France, we had ourselves very recently held inferior diplomatic communication with France, and trusted to their faith when officially given. In the late negotiations for a cartel, our government even promised to liberate French prisoners, if the French government would certify, that an equal number of English prisoners was liberated in France. It was asked, then, with what consistency we refused to make a direct promise. in return for a French promise, respecting America, whilst we agreed to act by anticipation on the faith of a promise respecting prisoners from that same government? The Americans evidently trusted to the faith of France respecting the revocation of the decrees, and acted upon the promise of the 5th of August, by issuing proclamations to admit French vessels within their waters. It is evident, therefore, from our delaying to retract the orders in council, that we either doubted the faith of the enemy, or were determined to uphold the orders independent of all considerations. The answer of Lord Wellesley certainly was not proceeding *pari passu* with France; and the policy of retracting from our promise to that effect may be questioned, on other grounds than the intrinsic merits of the orders in council. It is a question of good faith, and no consideration of interest ought to stand in the way of that faith being fulfilled.

In consequence of this proceeding, the President of the United States, in November, proclaimed, that the former restrictions of intercourse should cease to exist with regard to the trade of France and her dependencies; and that, if Great Britain should not rescind her orders in council before the 2d of February 1811, the act of non-intercourse should, from that date, be revived, so far as it relates to Britain and her dependencies.

Campai
in Spai
1811.

The Spanish campaign of 1811, was distinguished, at its very commencement, by one of the most severe and brilliant engagements that has occurred during the present war. About the end of February, an expedition set sail from Cadiz, under the command of the Spanish general La Pena, and of our gallant countryman, General Graham. It consisted of 3000 British troops, and of 7000 Spaniards. They landed at Algesiras, and moved from Tariffa towards Barbate on the 28th of February, with the view of attacking the enemy's lines before Cadiz. After a night-march of 16 hours, from the camp near Veger, the army arrived, on the morning of the 5th, on the low ridge of Barrosa, about four miles south of the mouth of the Santi Petri river. The vanguard of the Spanish army, under General Cadrizabel, having opened the communication with the Isle de Leon, by a successful attack on the rear of the enemy's line near Santi Petri, General Graham was ordered by La Pena to move down from the position of Barrosa to that of the Torre de Bermesa, about half way to the Santi Petri, for the purpose of securing the communications across the river, over which a bridge had been lately thrown. During his march to the Bermesa, General Graham was informed that the enemy had appeared in force on the plain, and was marching to the heights of Barrosa. In order to support the Spanish troops under La Pena, which were left to defend the heights, the General immediately countermarched; but, before his army was disentangled from the wood, the troops on the Barrosa hill were seen returning from it, while the enemy's left wing was rapidly ascending. The right wing, at the same time, stood on the plain on the edge of the wood, and within cannon-shot. Under these circumstances, a retreat was impracticable; and General Graham determined upon an immediate attack. A powerful battery of ten guns in the centre, was opened by Major Duncan; and, as soon as the infantry was formed, the guns advanced to a more favourable position, and kept up a most destructive fire. The right wing, under Major-General Dilkes, advanced to the attack of General Ruffin's division on the hill; while Lieutenant-Colonel Barnard's battalion, and Lieutenant-Colonel Bushe's detachment of the 10th Portuguese, were warmly engaged with the enemy's tirailleurs on the left. In spite of the havoc made by Major Duncan's battery, the division of Laval continued to move forward in very imposing masses, opening their fire of musketry, but it was checked by the left wing, which advanced firing; and a determined charge by the three companies of guards, and the 87th regiment, supported by the rest of the wing, decided its defeat. This division was closely pursued beyond a narrow valley, where a body of reserve shared the same fate. The right wing of the British, under General Dilkes, was equally successful. The enemy, confident of success, encountered it on the ascent of the hill, where a most sanguinary contest ensued; but the undaunted perseverance of our troops overcame every obstacle, and succeeded in driving

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General Ruffin's division from the heights. In less than an hour and a half after the commencement of the action, the enemy were in full retreat; but, having afterwards halted, and evinced a disposition to form, they were quickly dispersed by a new and advanced position of our artillery. During the action, an attempt was made by a corps of French infantry and cavalry to turn the Barrosa height by the sea; but this force was kept in check by General Whittingham with three squadrons of cavalry.

From the exhausted state of the troops, General Graham found it impossible to pursue the enemy; he therefore took a position on the eastern side of the hill. During the whole of this brilliant engagement, the Spanish troops under La Pena, though within a quarter of an hour's ride of the scene of action, remained in a state of total inactivity, and the Spanish general seemed to have been completely ignorant of what was going on in the field. The British division had to struggle alone in this unequal conflict, in which they lost one fourth of their number, and were rendered unable to follow up the victory which had been so dearly won. Had the Spanish cavalry, with the horse artillery, been rapidly sent by the sea beach to form on the plain, and to envelope the enemy's left, and had the great body of the infantry been marched through the pine wood, in the rear, to turn the enemy's right, he must either have retired instantly, without occasioning any serious loss to the British, or have exposed himself to inevitable destruction.

The troops, under General Graham, amounted only to about 5000, while the French had about 8000 men engaged; but, notwithstanding this disparity of numbers, the loss of the British amounted only to about 200 killed, and 1000 wounded, and that of the French to nearly 3000. An eagle, and six pieces of cannon, and the General of Division Ruffin, the General of Brigade Rosseau, (who afterwards died of his wounds,) and 420 prisoners, were the trophies of this brilliant action. General Bellegard, aid-de-camp to Marshal Victor, was killed, and the French Marshal himself is said to have escaped only by the swiftness of his horse.

The personal bravery and military skill of General Graham, which had been so conspicuous in the battle of Barrosa, excited the universal admiration of his countrymen. The thanks of both houses of parliament were unanimously voted for this gallant achievement, with a warmth of feeling which had never been exhibited on any similar occasion; and had not the Prince Regent been fettered by the restrictions upon his office, he would have instantly conferred upon the general some signal mark of his gratitude.

Siege of Badajos, 6th Feb.

About the beginning of February, the French broke ground before Badajos, on the left bank of the Guadiana, and threw some shells into the town. On the 6th of February, the troops under General Mendizabel entered Badajos, and the fort of St Christoval; and, on the 7th, they made a sortie upon the enemy, by which they obtained possession of one of his batteries; but before they had time to spike the guns, they were obliged to retire, after suffering a loss of about 85 officers, and 500 men killed and wounded. On the night of the 11th, the French carried the redoubt of Pardalleiros, and afterwards constructed a work on the left bank of the Guadiana, to fire upon the bridge of communication with the right bank. In order to keep open the communication between Badajos, and the country on the right bank of the Guadiana, General Mendizabel took a position on the heights of St Christoval, where he was attacked and totally defeated by the French on the 19th February. After crossing the Guadiana and the Evora, the enemy surprised the Spanish army in their camp, and took all their baggage and artillery. On the 9th of March, the enemy made a breach, 18 feet wide, which was not practicable; and, on the same day, General Imaz, the governor, received a message from Lord Wellington, assuring him of succour, and enjoining him to defend the place to the last; but though the garrison amounted to 9000 men, well supplied with ammunition and provisions, it basely surrendered to the French on the 10th of March. "Thus, in the course of two months," says Lord Wellington, "the Spanish nation has lost the fortresses of Tortosa, Olivenza, and Badajos, without any sufficient cause; and, at the same time, Marshal Soult, with a corps of troops which was never supposed to exceed 20,000, besides the capture of the two last places, has made prisoners or destroyed above 22,000 Spanish troops."

On the very day on which the battle of Barrosa was fought, Massena retreated from his position at Santarem; and, on the morning of the 6th, the allied army were in motion to follow him. The enemy marched towards the Mondego, and, on the 12th, their reserve, consisting of the 6th corps, and General Montbrun's cavalry, took up a strong position at the end of a defile, between Redinha and Pombal, with their right in a wood upon the Souvre river, and their left extending towards the high ground above the river of Redinha, and the town in their rear. In this position they were attacked by the 3d and 4th, and light divisions of infantry, and by General Pack's brigade and the cavalry. The post of the enemy in the wood was gallantly forced by the light division, under Sir William Erskine. The troops being now able to form in the plain beyond the defile, Sir Brent Spencer led the line against the enemy's position on the heights, from which they were driven with great loss. The French again took a position upon the heights, on the other side of the Redinha; but the 3d division crossed over by the bridge and ford, which were commanded by the enemy's cannon, and drove them upon their main body at Condeixa. After being dislodged from Condeixa on the 13th, they formed in a very strong position near Cazel Nova, from which they could only be dislodged by movements on their flank; these movements, executed in a masterly manner, obliged them to abandon all the positions which they successively took in the mountains, with a considerable loss of killed, wounded, and prisoners. On the 15th, the enemy again formed on the river Ceira, but this position was also abandoned after much hard fighting. Numbers of the enemy were drowned in attempting to cross the Ceira, and a great deal of baggage, and ammunition carriages, fell into the hands of the allies. From the Sierra de Morta, where the French again made a stand, they were driven, on the 19th, with the loss of 600 prisoners, their left retiring by Gouvea, through the mountains upon Guarda, and the remainder of the army by the high road upon Celerico. On the 3d of April, several sharp actions were fought between the allied army and the enemy's left, in which the latter were uniformly beaten. In consequence of a storm of rain, which darkened the atmosphere, the 43d, 52d, and 95th regiments, were unexpectedly involved in a desperate conflict with the main body of the French, which they intended to turn. They succeeded, however, in repulsing the enemy, and in taking one howitzer, and 200 prisoners. On the 8th, the last troops of the enemy crossed the Agueda, and on the 9th, the allied army was in the vicinity of Almeida, on the left bank of the Agueda, with their head quarters at Villa Formosa.

During the whole of this retreat, the French Marshal displayed the most consummate skill. He brought off his troops in one solid mass, covering their rear in every march by the operations of one or two corps d'armée, which availed themselves of the strong positions of the country, and were always closely supported by the main body. The loss of the French in killed, wounded, and prisoners, since the commencement of their retreat, has been computed at 7000. The cruelties which they committed against the inhabitants during the whole of their march, are unexampled in the history of modern war. They burnt the towns and villages through which they passed. The convent of Alcobaca was burnt by an order from the French head-quarters, and the whole town of Leyria shared the same fate.

Lord Wellington having made arrangements for the blockade of Almeida, left the command of his army to Sir Brent Spencer, and proceeded to the army under Sir W. Beresford, to make arrangements with that officer, for carrying on the operations in the south of Portugal. After remaining some time in Estremadura, Lord Wellington received intelligence from Sir Brent Spencer, that the enemy were increasing their force on the Agueda, and returned to his army on the 28th. On the 23d and 27th, Massena attacked the picquets of the allies on the Agueda, but was repulsed with loss. On the 12th of May, he collected a large force at Ciudad Rodrigo, and, on the following day, the whole of the French army recrossed the Agueda. On the afternoon of the third, they attacked, with a large force, the village of Fuentes d'Honore, which was bravely defended by several battalions of light infantry. Perceiving the repeated efforts which were made by the enemy to obtain possession of this village, and the vast advantages which they would derive from it in their subsequent operations, Lord Wellington reinforced it successively with the 71st, 79th, and 24th regiments. Colonel Cadogan, at the head of the 71st regiment, charged the enemy, and drove them from the part of the village of which they had obtained a momentary possession; and when night put an end to the contest, the whole of the village remained in our possession. On the morning of the 5th, the 8th corps of the enemy having obliged General Houston to retire with some loss, established themselves in Poya Velho, while their cavalry turned the right of the 7th division, between Poya Velho and Nave d'Aver. The charge of the advanced guard of the enemy's cavalry was repulsed by three squadrons of British dragoons, and Colonel La Motte, of the 18th chasseurs, and some prisoners were taken. The principal exertions of the enemy, however, were directed against Fuentes d'Honore; and though the whole of the 6th corps was, at different periods of the day, employed in the attack of this village, they were never able to gain more than a temporary possession of it. The contest in this quarter lasted till night, when the British troops maintained their post.

On the 7th the French army began to retreat, and on the 10th they crossed the Agueda; having completely failed in their attempt to relieve Almeida. In the actions on the 3d and 5th, the French sustained a loss of nearly 7000 in killed, wounded, and prisoners. In the village of Fuentes d'Honore, they left 400 of their dead. The loss of the allies amounted to 184 killed, 1576 wounded, and 316 missing.

In the south of Portugal, the army of General Beresford was equally successful. Olivenza surrendered at discretion on the 15th of April, and measures were immediately taken for the siege of Badajos. On the 10th of May, however, Soult advanced from Seville with a force of about 18,000, and was joined in Estremadura by 5000 troops, under General Latour Maubourg. The united armies of Castanos and Sir W. Beresford, who had judged it prudent to raise the siege of Badajos, took up a position in two lines nearly parallel to the rivulet of Albuera. General Blake, hearing of the advance of Soult, joined the allied army on the morning of the 16th; and a few hours afterwards the French army began their march.

Battle of Albuera March 16th.

At nine o'clock in the morning, the enemy attacked the Spanish troops, who, after a gallant resistance, were driven from the heights on which they had been formed. In the mean time, the division of the Hon. Major-General W. Stewart, which had been brought up to support them, and that of Major-General Hamilton, which came to the left of the Spanish line, formed in contiguous close columns of battalions, in order to be moveable in any direction. Brigadier-General Otway, at the head of the Portuguese cavalry, remained at some distance on the left of this, to check any attempt of the enemy below the village.

As the heights from which the Spanish troops had been driven, raked and commanded the whole position of the allied army, the division of General Stewart made a noble effort to retake them from the enemy. Lieutenant-Colonel Colborne, at the head of the right brigade of General Stewart's division, first came into action, but finding that the column of the enemy could not be shaken by fire, he proceeded to attack it with the bayonet. While the troops were in the very act of charging the enemy, a body of cavalry called the Polish lancers, who had been concealed by the thickness of the atmosphere and the nature of the ground, and who were mistaken for Spaniards when they were discovered, suddenly attacked and turned the brigade, which was unfortunately broken, and sustained immense loss. The 31st regiment, under Major L'Estrange, having alone escaped this charge, kept its ground till the arrival of the third brigade under Major-General Houghton, who gallantly attacked the enemy, and fell, pierced with wounds, while he was cheering on his brigade to the charge. Though the enemy's attack was chiefly directed to this point of the right, he likewise made continual efforts against the part of the original front of the allies, at the village and the bridge, which were defended by Major-General Baron Alten, and the light infantry brigade of the German legion. The front now formed the left; and Major General Hamilton's division, which had been brought up there, was left to defend it, with the assistance of a considerable proportion of Spanish troops. While the enemy's infantry attempted to force the right of the allies, their cavalry endeavoured to turn it; but all their efforts were baffled by the able manœuvres of Major-General the Honourable William Lumley, who commanded the allied cavalry. Major-General Cole, perceiving the attack of the enemy, brought up his left, marched in line to attack the left of the enemy, and contributed, with the charges of the brigades of General Stewart's division, to force the enemy precipitately from his situation, to take refuge under his reserve. The allies pursued the French to a considerable distance, and drove them across the Albuera.

At the beginning of the engagement, a heavy storm of rain came on, which, along with the smoke from the firing, rendered it impossible to see any thing distinctly. From this obscurity the French derived great advantage, both in the formation of their columns, and in their subsequent attack.

During the whole of this well-contested battle, which lasted from nine in the morning till two in the afternoon, the skill and courage of the British troops were eminently displayed. The dead of the 57th regiment were lying as they fought, in ranks, and every wound was in the front of their bodies. The loss of the French has been estimated at 8000, while that of the allies did not exceed, in killed, wounded, and missing, 5686.

Soult, with the remainder of his army, retreated to Llerena, where he received great reinforcements from different parts of Spain, and was afterwards joined by the army under Marmont.

Blockade of Almeida.

After the battle of Fuentes d'Honore, the allies resumed the blockade of Almeida. The commander of the garrison, General Brennier, perceiving that it was in vain to defend the place, conceived the hazardous design of evacuating it during the night, and carried his resolution into effect with the most consummate skill. In order to deceive the blockading army, he continued for several nights to fire cannon occasionally from the fortifications. After destroying all the ordnance, he set fire to the mines which had been constructed for blowing up the works, and at one o'clock in the morning of the 11th, he marched out with his garrison; and cutting his way through the picquets by which the place was observed, he joined the army of Massena, in the vicinity of Ciudad Rodrigo. A considerable part of the garrison was lost in this bold enterprise, and the rest were saved in consequence of the 4th regiment mistaking the road to Barba del Puerco. On the evening of the 7th of May, there was a very heavy fire of cannon from the fort, and the picquets were attacked. The same thing happened on the 8th, so that the blockading troops, and the queen's regiment in particular, ascribed the explosion on the 11th to the same cause from which it had arisen on the preceding night. In consequence of this mistake, none of the troops moved till the real cause of the explosion was ascertained.

Evacuation of Almeida, and the escape of the garrison.

Siege
Badajo

Leaving Sir Brent Spencer in the command of the army of Almeida, Lord Wellington took the command of the allies before Badajos, on the 22d of May. On the 25th, the place was invested on the right of the Guadiana, and the ordnance and stores being brought up for the siege, the allies broke ground on the evening of the 29th. The fire commenced on the 2d of June, from four batteries; and on the night of the 6th, two breaches in the walls of the Fort St Christoval appeared to be practicable. A detachment of the 85th regiment, under Major Mackintosh, moved forward in the best order, and with the utmost intrepidity, under a heavy fire of musquetry and hand-grenades from the outworks, and of shot and shells from the town, the advanced guard being led by Ensign Dyas of the 51st regiment; but when they arrived at the bottom of the breach, they saw that the enemy had cleared the rubbish from the bottom of the escarp, and though provided with ladders, they found it impossible to mount it, and were obliged to retire with loss. Another attempt to storm the outwork of St Christoval was made on the 9th, but though conducted with the same gallantry, the storming party were unable to mount the breach, and were obliged to retire with considerable loss. In these two attempts the allies lost about 300 men.

On the 10th of May, Lord Wellington having received information that Soult was collecting a force for the purpose of again advancing upon his position, and that the army of Marmont had broke up from Ciudad Rodrigo to join that of Soult, raised the siege of Badajos. He crossed the Guadiana with his whole army, and encamped in the woods, upon the Layer between Quinta de St Joos and Arronches, where he was afterwards joined by the army under Sir Brent Spencer.

In other parts of Spain, the patriots were not equally fortunate. The death of the Marquis de la Romana was a severe loss to the Spaniards. On the 1st of January 1811, Tortosa surrendered to Marshal Macdonald, after 13 days open trenches; and the garrison, consisting of 9500, laid down their arms, and were made prisoners of war. Tarragona, after a month's siege, surrendered to Marshal Suchet. Cherishing constant hopes of relief, the Spanish garrison maintained a brave resistance, and made several destructive sorties against the besiegers. The place, however, was taken by assault, on the 29th of June, and the people, as well as the brave garrison, were treated with unexampled cruelty. Four thousand men were killed in the city; 1000, who endeavoured to save themselves behind the walls, were either sabred or drowned; and nearly 10,000, of whom 500 were officers, were taken prisoners, and sent to France. The junta of Tarragona escaped to the monastery of Montserrat, the fortifications of which had been

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deemed impregnable; but Suchet, following up his success, likewise made himself master of Montserrat, on the 24th of July.

About the beginning of August, the army of Lord Wellington marched from its cantonments on the Alentejo towards the north of Portugal, and took up a fresh position, nearly on the ground which it occupied before the battle of Fuentes d'Honore.

With the view of relieving Ciudad Rodrigo, the enemy commenced their movements on the 21st of September. On the 23d, they appeared on the plain near Ciudad Rodrigo, but again retired. On the 24th, they entered the plain in considerable force, and on the morning of the 25th, a body of their cavalry drove in the British posts on the right of the Azara, but, having passed that river, they were compelled to recross it by a body of the 14th and 16th light dragoons.

The enemy's attention was principally directed to the position of the third division, on the hills between Fuente Guinaldo and Pastores. Their attempts to gain that position were repulsed with great gallantry; but on the arrival of a division of French infantry, Lord Wellington judged it prudent to retire, and the army, formed into squares, retreated in good order to Fuente Guinaldo. On the evening of the 25th, and on the 26th, the enemy collected their whole force in front of the allied army; but Lord Wellington thought it advisable to retreat, and on the 28th, he formed his army on the heights behind Soito, having the Sierra das Mefas on his right, and his left at Renda, on the Coa.

Marshal Suchet, with 20,000 men, entered the kingdom of Valencia from Tortosa, and laid siege to the strong fortress of Murviedro, the ancient Saguntum. On the 29th of September, he made three attempts to obtain possession of the fort by escalade, but in all of them he was repulsed with great loss, and obliged to leave his ladders behind. In the mean time, General Blake, who had taken the command of the armies of Murcia and Valencia, assembled troops from every quarter, and gave battle to Suchet on the 25th of October, with the view of relieving Murviedro. The Spaniards fought with the greatest gallantry, and several times outflanked and drove the French from their position; but the decisive manœuvre of penetrating their centre, was successfully practised by Suchet, and Blake was obliged to fly after an engagement of seven hours, in which he lost about 6500 in killed, wounded, and prisoners. The result of this victory was the capitulation of Murviedro, the garrison of which marched out through the breach on the 27th of October, with all the honours of war. The prisoners who thus fell into the hands of the French, with those taken at the battle of the 25th, amounted to 7211, of whom 369 were officers.

General Hill surprises and routs the division of General Girard, Oct. 28th.

The operations of the allied army in the north of Portugal were attended with more success. General Hill left his cantonments near Portalegre, on the 22d of October, and advanced towards the Spanish frontier. When he arrived at Albuquerque, on the 23d, he learned that the French troops under the command of General Girard, amounting to 2500 infantry, and 600 cavalry, had retired upon Merida; and, after following them for four days, he had every reason to believe that Girard was not only in total ignorance of the approach of the British troops, but was completely off his guard. The main body of the French had halted at Arroyo del Molino, on the evening of the 27th, and General Hill resolved either to surprise the enemy, or bring him to action before he should march in the morning. By a forced march, on the evening of the 27th, the British troops reached Alcuesca, within a league of Arroyo del Molino, and at 2 o'clock on the morning of the 28th, they marched in one column upon that town. When they had arrived within half a mile of the town, the British troops divided into three columns, under cover of a low ridge, and the subsequent movements of these columns were concealed by a violent storm of rain and mist, which came on at the dawn of day. The left column marched directly upon the town, the right column broke off to turn the enemy's left, and the third column, consisting of the cavalry, moved between the other two. The 71st and 92d regiments charged into the town with cheers, and drove the enemy at the point of the bayonet. The French infantry, which was out of the town, formed into two squares, with their cavalry on their left; but being unable to withstand the charges of the British cavalry, and the well-directed fire of their musketry, they dispersed, and endeavoured to escape by ascending the mountain behind the town. Their cavalry fled in every direction; the infantry threw away their arms, and being pursued over the rocks by the troops under Major-General Howard, more than 1400 were made prisoners, and 600 were found dead in the woods and mountains. The general of cavalry, Brune, and the colonel of cavalry, Prince D'Armberg, with many officers, were among the prisoners, while General Girard himself, who was wounded in the engagement, escaped to Llerena, with only two or three hundred men.

The campaign of 1811 was not distinguished by any other events of importance. Lord Wellington had his head quarters at Frenada during the remainder of the year, while the division under General Hill was stationed at Merida.

Prince Regent sworn into his office, 6th Feb.

The Regency Bill having passed the great seal, his Royal Highness the Prince of Wales was sworn into his office on the 6th of February. The sanguine hopes which were at this time entertained of the king's recovery, and the fear of taking any measure which might in the least degree interfere with that desirable event, induced the Prince Regent to carry on the executive government by the same ministers that had been appointed by his royal father. He accordingly communicated this resolution to Mr Perceval;* and, on the 12th of February, the session

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* "The prince feels it incumbent upon him, at this precise juncture, to communicate to Mr Perceval his intention not to remove from their stations those whom he finds there, as his majesty's official servants. At the same time, the prince owes it to the truth and sincerity of character, which, he trusts, will appear in every action of his life, in whatever situation placed, explicitly to declare, that the irresistible impulse of filial duty and affection to his beloved and afflicted father, leads him to dread, that any act of the regent might, in the smallest degree, have the effect of interfering with the progress of his sove-

Meeting of Parliament.

of parliament was opened by a speech from the Prince Regent, which was delivered by commission. The speech congratulated parliament on the capture of the islands of Bourbon and Amboyna; on the repulse of the enemy's attacks on Sicily, and on the skill, the prudence, and perseverance displayed by Lord Wellington throughout the whole of the Spanish campaign. The Regent called upon parliament to continue the most effectual assistance to the brave natives of the peninsula, in the support of a contest which they have manifested a disposition to maintain with unabated perseverance; and expresses his persuasion, that the best interests of the British empire must be deeply affected in the issue of a contest on which the liberties and independence of the Spanish and Portuguese nations entirely depend. In alluding to the discussions respecting America, the Prince Regent expresses his earnest wish that they may be brought to an amicable termination, consistent with the rights and interests of the united kingdom. The revenue of Ireland is stated in the speech to have suffered a considerable diminution, while that of Great Britain during the year 1810, was greater than had been known in any preceding year.

Proceedings respecting the meetings of the Catholics.

The conduct of the Irish Catholics was one of the principal subjects which occupied the attention of parliament at the beginning of the session. The Roman Catholics in the different counties of Ireland, were summoned to hold a meeting for the purpose of electing delegates to sit in the Catholic committee which was formed in Dublin, in order to promote the great object of Catholic emancipation. The Lord Lieutenant considering these meetings as illegal, and as injurious to the tranquillity of the country, issued a circular letter to the sheriffs and chief magistrates of the counties, "requiring them, in pursuance of the provisions of an act of the king, cap. 29, to cause to be arrested, and to commit to prison, all persons within their jurisdiction, who shall be guilty of giving or having given, of publishing or having published, or of causing or having caused to be given or published, any written or other notice of the election and appointment, in any matter of such representative, delegate, or manager as aforesaid; or of attending, voting, or acting, or of having attended, voted, or acted, in any manner, in the choice or appointment of such representative, delegate, or manager."

In the House of Lords.

This circular letter, which was issued without the previous approbation, or even knowledge, of the Prince Regent or his ministers, excited great dissatisfaction among the Catholics in Ireland, as well as among their friends in England. Lord Moira, in the House of Peers, reprobated such a measure, as injurious to the character of the Prince Regent, as dangerous to the peace of the country, and as contrary to the act of Union. The Earl of Ross contended, that as long as the Catholic committee confined its attention to the object for which they were avowedly appointed, the Irish government did not interfere; but that when the regular business of the committee was over, it proceeded to the most alarming lengths. The committee, he stated, consisted originally of 38 members; and they had lately determined, that each county of Ireland should send ten members to the committee, which would then consist of no fewer than 358, a convention which he considered highly dangerous to the tranquillity of Ireland.

On the 7th of March, the subject was brought regularly before the House of Commons, when the Honourable Mr Wellesley Pole, the Irish secretary, was present. The assembly, said Mr Ponsonby, which had been described in the circular letter as an unlawful meeting, had been for many years in existence, and in the habit of meeting to promote the object for which it had been appointed: nay, it had actually taken measures for augmenting its number, twenty-four days before the promulgation of the circular letter. What, then, was the reason why this assembly had been so long suffered to continue its proceedings, without any interference on the part of government? With respect to the convention act, in which the circular letter was printed, it had never been put in force. Even by the act itself, the mere publishing of notices was not an offence; for it expressly declares, that, in order to commit the offence, a man must be guilty of voting, as well as of attending; whereas the circular letter required, that all who attended might be arrested. In reply to these observations, Mr Pole stated, that no obstruction would have been given to the proceedings of the Catholic committee, while they met solely for the purpose of petitioning; that, at the committee of 1810, the most violent and inflammatory speeches were delivered, in which the English government were represented as hostile to Ireland and its Catholic inhabitants; and that a sub-committee had been appointed to inquire into the grievances which the Catholics had suffered from a bigotted government. Mr Pole enumerated many other instances, in which he thought the Catholic committee had gone beyond the object for which they were appointed, and which he considered as sufficient grounds for enforcing the convention act.

On the 9th of July, a meeting of the Catholics of Ireland was held in Dublin, and a series of resolutions were passed relative to the measures which were thought necessary for obtaining signatures to their petition from all parts of Ireland, and for bringing it before both houses of parliament. In consequence of this meeting, the Irish government issued a proclamation, declaring all such meetings illegal, and or-

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reign's recovery. This consideration *alone* dictates the decision now communicated to Mr Perceval. Having thus performed an act of indispensible duty, from a just sense of what is due to his own consistency and honour, the prince has only to add, that among the many blessings to be derived from his majesty's restoration to health, and to the personal exercise of his royal functions, it will not, in the prince's estimation, be the least, that that fortunate event will at once rescue him from a situation of unexampled embarrassment, and put an end to a state of affairs, ill calculated, he fears, to sustain the interests of the united kingdom, in this awful and perilous crisis, and most difficult to be reconciled to the genuine principles of the British constitution.'

dering the sheriffs and magistrates to disperse them in terms of the convention act.

No sooner was this proclamation issued, than an extraordinary meeting of the Catholic committee was held in Dublin, at which they determined to continue their meetings for the purpose of electing delegates to the committee. These meetings, which were held in several of the parishes of Dublin, experienced no interruption till the 8th of August, when several Catholic gentlemen were arrested under a warrant from the Lord Chief-Justice Downes. The Catholics, however, continued to hold their meetings, and some of the delegates were arrested. On the 8th of November, new bills were found against several of the delegates by the grand jury of Dublin; and, on the 21st of November, Dr Sheridan was tried before the Court of King's Bench. The trial lasted two days, and the jury brought in a verdict of not guilty. The issue of this trial being decisive with respect to the other delegates who had been arrested for the same offence, the attorney-general moved for leave to send up new bills of indictment to the grand jury on the ground of informality. Informations *ex officio* were also filed against Lord Fingal, and several other gentlemen, for attending the Catholic meetings, and for publishing an account of their proceedings.

The attention of parliament was called, during the present session, to the state of commercial credit, and a select committee was appointed to report upon this subject. The great embarrassments which prevailed in the commercial world appear to have first arisen out of extensive speculations, which commenced on the opening of the South American markets. The immense cargoes which were sent to the ports of South America, overstocked the markets, and the merchants were obliged to bring back their cargoes to England. On their return, they found the country glutted; and as no market remained for them on the continent of Europe, the exporters were unable to pay the manufacturers when their bills became due, and, of course, the manufacturers were involved in the same distress. This embarrassment seemed to prevail principally among the cotton manufacturers. In order to relieve this distress as much as possible, six millions of Exchequer bills were issued, on condition that the merchants who obtained aid should give security for repayment at a limited time.

In consequence of a message from the Prince Regent, the attention of both houses of parliament was called to the subject of a subsidy to Portugal. The sum of one million had been granted in the year 1810, for the purpose of taking Portuguese troops into British pay, and having them disciplined and commanded by British officers. The success with which this plan was attended, and the courage and perseverance which had been displayed by the Portuguese in the last campaign, were held out by ministers as a reason for increasing the subsidy to two millions. The opposition represented this system of policy as an enormous drain on the resources of the country; and they expressed their belief, that whatever temporary success might attend the allied arms, Portugal must ultimately fall under the overwhelming power of France. The grant, however, was carried without a division.

Capture of Batavia.

The year 1811 was distinguished by the fall of the last colony of France. About the middle of summer, an expedition sailed from India, for the purpose of reducing the settlement of Batavia. Lord Minto, the governor-general of India, attended it in person, while the army was commanded by Sir Samuel Auchmuty, and the naval part of the expedition by Rear-Admiral Stopford. The troops landed on the 4th of August at the village of Chillingching, about twelve miles to the east of the city of Batavia, and advanced to the capital by the road along the coast. The bridge over the Anjol having been broken down by the enemy, the army passed the river in boats on the 7th, and lodged themselves in the suburbs of the city. A temporary bridge, capable of supporting light artillery, was constructed on the 8th; and, on the same day, the town of Batavia surrendered without opposition, and the garrison retreated to Weltevreede. Early on the morning of the 10th, Colonel Gillespie moved with his corps towards the enemy's cantonments at Weltevreede, supported by two brigades of infantry that followed his route. The cantonment was abandoned, but the enemy held a strong position about two miles in advance of their works at Cornelis, and defended by an abbatis, occupied by 3000 of their best troops and four guns of horse artillery. After an obstinate resistance, this position was carried at the point of the bayonet, the enemy were completely routed, and their guns taken. A strong column advanced to their support from Fort Cornelis; but the British line having arrived, it was instantly driven under the shelter of their batteries. In this affair, the enemy lost about 500 men, with Brigadier-General Alberti dangerously wounded. The enemy, who greatly outnumbered the British troops, were now strongly entrenched between the great River Jacatra and an artificial watercourse, called the Sloken, neither of which were fordable. A deep trench, strongly pallisadoed, enclosed this position; and the most commanding grounds within the lines were occupied with seven redoubts, and numerous batteries mounted with heavy cannon. The fort of Cornelis was in the centre, and all the works were defended by a numerous and well organised artillery. For the purpose of carrying the works by assault, several batteries were erected, and a heavy fire kept up for two days from twenty eighteen pounders, and eight mortars and howitzers, silenced their nearest batteries, and disturbed every part of their position.

On the 26th of August, at break of day, the British troops marched to the assault. Colonel Gillespie commanded the infantry of the advance, and the grenadiers of the line, and was supported by Colonel Gibbs, with the 59th regiment, and the 4th battalion of Bengal volunteers. The object of this column was to surprise the redoubt constructed by the enemy beyond the Sloken, to endeavour to cross the bridge over that stream with the fugitives, and then to assault the redoubts within the lines. Lieutenant Colonel M'Leod, at the head of six companies of the 69th, was directed to follow a path on the banks of the Jacatra, and when the attack upon the Sloken had commenced, to take possession of the enemy's left redoubt. Major Yule, with the flank corps of the reserve, reinforced by two troops of cavalry, four guns of the horse artillery, two companies of the 69th, and the grenadiers of the reserve, was directed to attack the corps at Campong Maylayo, on the west of the Jacatra, and to cross the bridge at that post. The rest of the army under General Wetherall was placed at the batteries, from which a column under Colonel Wood, consisting of the 78th regiment, and the fifth volunteer battalion, was directed to advance in front against the enemy at the first favourable moment, to force his way, and open the position for the line.

After a long detour through a close and intricate country, Colonel Gillespie came up with the advanced guard of the enemy, put it to the rout, and took possession of the advanced redoubt, under a heavy fire of grape and musketry. He then passed the bridge with the fugitives, and, under a most tremendous fire, he assaulted and carried with the bayonet another redoubt. The two divisions of this column having now separated, Colonel Gibbs turned to the right, and with the 59th in front, and part of the 78th, who had forced their way in front, he carried a third redoubt. No sooner was this redoubt taken, than a tremendous explosion of the magazine took place, and destroyed a number of our officers and soldiers who were upon the ramparts which the enemy had abandoned. The left redoubt of the enemy was carried, in the most gallant manner, by Lieutenant Colonel M'Leod, who fell in the very moment of victory. The front of the position being now opened, the troops rushed in from every quarter. While these operations were going on in the right, Colonel Gillespie carried the redoubts towards the rear, and being joined by Lieutenant Colonel M'Leod of the 59th, with part of that corps, he directed him to attack the park of artillery,—a duty which that officer discharged with the utmost gallantry, after having routed a body of the enemy's cavalry that had formed for the purpose of defending it. A strong body of the enemy who had posted themselves in the lines, in front of Fort Cornelis, maintained a sharp fire of musketry; but they were soon driven from their position, and the fort was taken by the British. The enemy being now completely dispersed, were pursued by Colonel Gillespie with the 14th regiment, and a party of Sepoys, and by the seamen from the batteries, under the command of Captain Sayer of the royal navy. The cavalry and horse artillery, however, now effected a passage through the lines, and continued the pursuit, till the whole of the enemy's army was either killed, taken, or dispersed. The column, under Major Yule, succeeded in routing the troops at Campong Maylayo, but he found the bridge on fire, and was therefore unable to proceed farther. The loss sustained by the British in these brilliant exploits, was 91 killed, and 513 wounded. More than 1000 of the enemy were buried in the works, multitudes were cut down in the retreat, the rivers were choked with the dead, and the huts and woods were filled with the wounded. Nearly 5000 prisoners were taken, among whom were three general officers, 34 field officers, 70 captains, and 150 subaltern officers.

General Jansens escaped with great difficulty during the action with the remnant of an army of 10,000. After reaching Bugtenzorg, he retreated, by an eastern route, with the intention of collecting his remaining force, near Samarang, and retiring upon Solo. The British troops arrived at Samarang on the 9th September; but, in consequence of an attack by the boats of the British squadron, General Jansens had evacuated Samarang, and retired to a strong position about six miles off, where he erected batteries and entrenchments. This new position was forced with great gallantry, by Colonel Gillespie, who pursued the enemy to Oonorang, from which they were also compelled to retire in the utmost confusion. An armistice was now requested by General Jansens, and, on the 17th, a capitulation was signed, by which the French officers and privates were made prisoners of war.

The present year was not distinguished by any naval operations of peculiar interest or importance. With no enemy to encounter but the elements, the British navy could not be expected to gather many laurels. The defence of Anholt by a handful of British sailors and soldiers, is perhaps one of the most brilliant exploits that we have had occasion to record. On the 27th of March, this island was attacked by a Danish flotilla, consisting of 18 heavy gun-boats, carrying nearly 4000 men. Having landed in three divisions, they made three successive attempts to storm the fort and batteries; but they were uniformly repulsed by the bravery of the garrison. A signal was now made to the Danish gun boats, which opened a heavy fire on our works; but a well directed discharge of grape and musketry from the two batteries, killed their leader, who was a captain in the Danish navy, and made great havoc among the troops. Discouraged by the loss of their commander, the Danes retired for shelter behind some sand hills; but Lieutenant Baker anchored the Anholt schooner on their flank, and forced them, by a most destructive fire, to surrender at discretion. The loss of the Danes amounted to 50 men killed, besides a number of wounded, and no fewer than 504 prisoners fell into our hands, along with three pieces of artillery, 500 muskets, and 3000 rounds of cartridges. The third division of the expedition embarked under cover of the gun boats; but they were attacked on their way to the Danish coast by his majesty's ships the Sheldrake and Tartar, who captured several of their gun-boats, and took 150 prisoners.

An exploit scarcely inferior in gallantry, but more remarkable for having been performed in the presence of Bonaparte, was achieved off Boulogne by the Naiad frigate, three sloops of war, and a cutter, over seven large praams, eleven gun-brigs, and other small craft, amounting to 27 sail. On the 22d of September, at noon, the British ships began the attack, and soon compelled the French admiral to retire. Bonaparte, who was viewing the action along with Marshal Ney, in a barge on the outside of the harbour, directed a French commodore to proceed with his praam, mounting 12 long brass 28 pounders, to assist the admiral.

The French vessel ran along side with the intention of boarding; but Captain Carteret dreading that she would run off, lashed her to his own ship, and, in a short time, compelled her to strike. The French admiral, with the rest of his fleet, now made towards the harbour of Boulogne; and Bonaparte is said to have been so enraged at their retreat, that he ordered the guns of the batteries to be turned on the flotilla, to drive them out to renew the engagement.

The British navy sustained a considerable loss towards the end of the year, from the tempests which raged in the north seas. On the morning of the 24th December, the St George of 98 guns, commanded by Admiral Reynolds, and the Defence of 74 guns, commanded by Captain D. Aitken, were driven on shore on the coast of Jutland, and the whole of the crews, amounting to nearly 1400 men, perished in the wreck. At break of day on the 25th of December, the Hero of 74 guns was stranded on a sand bank off the Texel, and the whole of her crew likewise perished.

The differences which had so long subsisted between this country and America, rose to a still greater height in the course of the present year. We have already seen, that the non-intercourse act was to be put in execution against Great Britain, on the 2d of February 1811, unless the orders in council were rescinded, and the commerce of neutral nations restored to its former footing. A vessel from New York, however, having been seized by the French under the Berlin and Milan decrees, Mr Randolph, a member of congress, moved for a bill to repeal the non-intercourse act. This motion being rejected, it was agreed to recommit the non-intercourse act to the committee of foreign relations, till full proof was obtained of the complete revocation of the French decrees. Desirous, if possible, to bring the various points in dispute to a speedy adjustment, the Prince Regent appointed Augustus John Forster, Esq. to be minister plenipotentiary to the United States; but before his arrival in America, a new and unexpected ground of difference arose between the two nations. On the 16th of May, the United States frigate the President, of 44 guns, commanded by Commodore Rodgers, gave chace to his majesty's vessel the Little Belt, of 18 guns, commanded by Captain Bingham. When the American frigate came within hail, Captain Bingham asked what ship it was? Commodore Rodgers repeated the words of the British captain, and immediately fired a broadside, which was instantly returned from the Little Belt. The action then became general, and continued for three quarters of an hour, when the firing of the American vessel ceased. About the same time the Little Belt was obliged to desist from firing, on account of the damage which she had sustained in her masts, sails, rigging, and hull. Commodore Rodgers again hailed, and asked what ship it was? and being answered by Captain Bingham, he then asked if the Little Belt had struck her colours? After giving a negative answer to this question, Capt. Bingham asked the name of the other vessel, and was answered that it was the United States frigate, the President. Commodore Rodgers then parted from the Little Belt; but on the morning of the 17th he bore up, and sent a message to Capt. Bingham, regretting the occurrence of such an unfortunate affair, and stating that he would not have fired had he known the inferiority of the British force. Captain Bingham asked him the motive which induced him to fire at all? to which the commodore replied, that the first gun was fired at him. In the account of this affair, communicated to the American government by Commodore Rodgers, he positively maintains, that the first gun was fired from the British vessel; and in the inquiries which were subsequently instituted by both governments, the evidence of the one crew was decidedly at variance with the evidence of the other. We are not willing that national partiality should bias our judgment in this singular affair, but we can scarcely believe, that a vessel of 18 guns would rashly provoke the hostility of a frigate of 44 guns; and if Captain Bingham had been so regardless of his duty, as to insult the American flag by the first fire, it is not within the limits of credibility that Commodore Rodgers would bear up next morning, regret the unfortunate affair which had happened, and offer every assistance to his disabled enemy.

After the arrival of Mr Forster in America, his correspondence with Mr Monroe, the Secretary of State, related chiefly to the British orders in council; the one party asserting, that the Berlin and Milan decrees were effectually repealed, while the other maintains that their repeal was merely partial and fallacious. The American minister contends, that we are bound to respect the solemn declaration of the French government on the 5th of August 1810, that the decrees were repealed; and he alleges, that the liberation of four or five American vessels, which had been captured and brought into French ports since the 1st of November, is a convincing proof of the sincerity of France. Mr Forster, on the other hand, maintains, "that the seizure of American vessels by the French since the 1st of November, and the positive and unqualified declarations of the French government, are stronger proofs of the continued existence of the Berlin and Milan decrees, than the restoration of five or six vessels, too palpably given up for fallacious purposes, or in testimony of satisfaction at the attitude taken by America, is a proof of their revocation, or of a return to the principles of justice."†

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† The nature of Mr Forster's argument will be better understood from the following paragraphs of the President's message to Congress, on the 5th November 1811:—"The justice and fairness which have been evinced on the part of the United States towards France, both before and since the revocation of her decrees, authorised an expectation that her government would have followed up that measure by all such others as were due to our reasonable claims, as well as dictated by its amicable professions. No proof, however, is yet given, of an intention to repair the other wrongs done to the United States, and particularly to restore the great amount of American property, seized and condemned under edicts which, though not affecting our neutral relations, and therefore not entering into the question between the United States and the other belligerents, were nevertheless founded on such unjust principles, that the reparation ought to have been prompt and ample.

" In addition to this, and other demands of strict right on that nation, the United States have much reason to be dissa-

In adjusting the affair of the Chesapeake and Leopard, which had so long been a subject of difference between the two countries, the British ambassador was more successful. He was authorised by the Prince Regent to offer the immediate restoration of the men who, in consequence of Admiral Berkeley's orders, were forcibly taken out of the Chesapeake, to the vessel from which they were taken; or, if that ship should be no longer in commission, to such sea-port of the United States as the American government might name for that purpose. Mr Forster was also instructed to offer to the American government a suitable pecuniary provision for the sufferers, in consequence of the attack upon the Chesapeake, including the families of those seamen who unfortunately fell in the action, and of the wounded mariners. These offers of reparation were accepted as satisfactory by the American government; and the symptoms of a conciliatory disposition, which were on this occasion evinced by both governments, encouraged a hope that every other ground of difference would speedily be removed. These hopes, however, subsequent events have shewn to be fallacious. The report of the committee of foreign relations, on the President's message, plainly intimates, that war alone can decide the differences which subsist between the two countries; and naval and military preparations are recommended as the prelude to a declaration of war. The threatening attitude which America has now assumed, appears somewhat inconsistent with that hesitating policy which she has maintained since the 2d of February, respecting the enforcement of the non-intercourse act; and a short time will shew, whether her warlike preparations are the spontaneous efforts of an independent people, determined to redress their wrongs,—or the ostentatious menaces of a faction, blinded by foreign influence, and expecting to obtain a compliance with their views, from the hazardous chances of war.

Meeting of parliament, January 7, 1812.

On the 7th of January, parliament was opened by a speech from the Prince Regent, which was delivered by commission. The Regent expressed his deep sorrow at the continuance of his majesty's indisposition, and at the unhappy disappointment of those hopes of his majesty's early recovery, which had been cherished by his family and his people. Parliament was congratulated on the complete success of the measures which had been pursued for the defence and security of the kingdom of Portugal. The surprise of General Girard's division by General Hill, was noticed as a brilliant and important enterprize; and the consummate judgment and skill displayed by Lord Wellington in the direction of the campaign, received its full praise. The perseverance and gallantry of the Spaniards, and the fitness of the new system of warfare to the actual condition of the Spanish nation, are adduced as reasons for continuing to afford the most effectual aid to the Spanish people. The capture of the islands of Bourbon and the Mauritius, and of the settlement of Batavia, are noticed as giving great additional security to the British commerce and possessions in the East Indies. The speech recommends to the attention of parliament the propriety of providing such measures for the future government of the British possessions in India, as shall secure their internal prosperity, and enable us to derive from these flourishing dominions the utmost degree of advantage to the commerce and revenue of the united kingdom. The speech regrets, that though the affair of the Chesapeake had been finally settled, various important subjects of difference with the government of the United States still remained unadjusted, and states, that the Prince Regent will continue to employ such means of conciliation as may be consistent with the honour and dignity of his majesty's crown, and with the due maintenance of the maritime and commercial rights of the British empire.

The only subject of national importance which has been brought under the consideration of parliament, was the state of Ireland. On the 31st of January 1812, Lord Fitzwilliam, in the House of Peers, moved for a committee of the whole house to take into consideration the state of Ireland. After a long debate, in which the usual arguments for Catholic emancipation were eloquently urged, the motion was rejected by a majority of 82, the numbers being 162 and 79. The same motion was made in the House of Commons by Lord Morpeth. The debate continued two days, and the motion was lost by a majority of 94, the numbers being 229 and 125.

The Spanish campaign of 1812 was opened by an event highly disastrous to the cause of the allies. The army under General Blake, which was posted in the entrenched camps of Manessa and Quarte, in the neighbourhood of Valencia, was attacked on the morning of the 26th December, by the French army under Marshal Suchet. After a severe battle, in which the Spaniards displayed the greatest gallantry, the French succeeded in forcing the entrenched camps of Quarte and Manessa, and the cannon, baggage, and caissons of the Spaniards fell into their hands. General Count Reille arriving at this moment on the Aldenga, turned the enemy, and made a great number of prisoners. General Blake being thus cut off from the road of Murcia, threw himself with his troops into Valencia, which was immediately invested by the French. On the night of the 22d of January, the French opened trenches within 70 or 80 toises of the Spanish works, and in the space of four days, their mines were carried within 50 toises of the fosse. In consequence of these preparations, the Spaniards abandoned their fortified lines, defended by 80 pieces of cannon. On the 5th of January, the bombardment of the town commenced; and, on the 6th, Suchet offered a capitulation, which was refused. In the space of three days, 2700 bombs were thrown into the city, which was on fire in several places. Two batteries of 10 24-pounders each, were erected for the purpose of making a trench in the interior defences, and the engineers had effected

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tisfied with the rigorous and unexpected restrictions to which their trade with the French dominions has been subjected, and which, if not discontinued, will require at least corresponding restrictions in importations from France into the United States."[1]

a lodgment in the out-houses of the suburbs, and placed mines under the two principal gates. In order to avoid the dreadful consequences of an assault, General Blake accepted a capitulation, by which the Spanish troops were permitted to march out with the honours of war, and lay down their arms beyond the bridge on the left bank of the Guadalaviar. By the surrender of Valencia, 16,131 troops of the line, 374 pieces of artillery, 180,000 pounds of powder, 3,000,000 of cartridges, 1800 cavalry and artillery horses, 21 stand of colours, and 893 officers, fell into the hands of the French. Marshal Suchet has, in consequence of this important capture, been honoured with the title of Duke of Albufera.

The operations of the French army in Andalusia, were not attended with the same success. The army under General Laval laid siege to Tariffa on the 20th of December 1811. On the 29th they began to batter in breach, and till the 31st they kept up a heavy fire of cannon on the breach, and of shells on the town causeway and island. On the morning of the 31st, a strong column of French troops, amounting to 2000, composed of all the grenadiers and voltigeurs of the army, advanced rapidly to the breach; but the British and Spanish troops, under Colonel Skerret, attacked them with such intrepidity, that in less than an hour they were completely repulsed. Numbers of the enemy fell near the foot of the breach, and the rest of the column made a precipitate retreat. The situation of the enemy's wounded, with which the ground was covered between his battery and our fire, where they must inevitably have perished, induced Colonel Skerret to hoist a flag of truce to carry them off. Some of them were brought into the place over the breach; but, from the extreme difficulty of this operation, the enemy were permitted to carry the rest away. The garrison of Tariffa consisted only of 1000 British troops, and about 800 Spaniards. The walls of the town had been built merely as a defence against archery, and had the additional disadvantage of being commanded within half musket-shot, and flanked, or taken in reverse in almost every part. The French continued to keep up a partial fire upon Tariffa; and on the 1st of January, the breach was completely open for the space of 25 or 30 yards. The enemy durst not venture, however, upon a second assault; but taking advantage of a dark and stormy night, they made a precipitate retreat, and left behind them all their artillery, ammunition, and stores.

Lord Wellington having removed his head-quarters from Frenada to Gallegos, invested Ciudad Rodrigo on the 8th of January. By means of a pallisadoed redoubt on the hill of St Francisco, and by fortifying three convents in the suburb, the defences of which are connected with the redoubt, the enemy had so much increased the difficulty of approaching the place, that Lord Wellington was obliged to obtain possession of the work on the hill of St Francisco, before any progress could be made in the attack. A detachment of the light division under Colonel Colborne was accordingly directed to attack the work soon after it was dark, and in a short time it was taken by storm, with the loss only of a few men. By obtaining possession of this work, he was enabled to break ground within 600 yards of the place, though the fortified convents were still in the possession of the French, and the redoubt on St Francisco was turned into a part of the first parallel. On the 14th of January, the fire of 22 pieces of ordnance was opened from the three batteries in the first parallel, and on the evening of the same day, the besiegers were established in the second parallel, the enemy's detachment having been previously dislodged from the convent of Santa Cruz, by Lieut. General Graham. The convent of San Francisco, and the other fortified posts in the suburb, were likewise taken on the same evening; and by these operations the approaches were protected both on the right and left. From the 15th to the 19th, Lord Wellington continued to complete the second parallel and the communication with the work, and had made some progress by sap towards the crest of the glacis; and on the night of the 15th, he had likewise advanced from the left of the first parallel down the slope of the hill towards the convent of St Francisco, to a situation from which the walls of the Fausse Braye and of the town were seen. A battery of seven guns was here constructed, and on the morning of the 18th its fire commenced. On the evening of the 19th, the batteries of the first parallel had not only considerably injured the defences of the place, but had made breaches in the Fausse Braye wall, and in the body of the place, which were considered practicable; while the battery on the slope of the hill had been equally efficient still further to the left, and opposite to the suburb of St Francisco. Though the approaches were not brought to the crest of the glacis, and though the counterscarp of the ditch was still entire, Lord Wellington determined to storm the place. Five columns accordingly marched to the attack, on the evening of the 19th. The two right columns, led by Colonel O'Toole and Major Ridge, were destined to protect the advance of Major-General Mackinnon's brigade, forming the third column, to the top of the breach in the Fausse Braye wall; and all these, being composed of troops of the third division, were under the command of Lieutenant-General Picton. The fourth column, which belonged to the light division, under Major-General Craufurd, attacked the breaches on the left, in front of the suburb of St Francisco, and covered the left of the attack upon the principal breach; while Brigadier-General Pack's brigade, forming the fifth column, was directed to make a false attack upon the southern face of the fort. In addition to these columns, the 94th regiment descended into the ditch in two columns, on the right of Major-General Mackinnon's brigade, in order to protect the descent of the body into the ditch, and its attack of the breach in the Fausse Braye, against any obstacles which the enemy might construct to oppose its progress.

All these attacks were attended with success. The false attack of Brigadier-General Pack was even converted into a real one, and his advanced guard followed the enemy's troops from the advanced works into the Fausse Braye, where they made prisoners of all who were opposed to them.

After escalading the Fausse Braye wall, Major Ridge stormed the principal breach in the body of the place, along with the 94th regiment under Lieutenant

Britain. Prince Regent. 1812.

Colonel Campbell, which had moved along the ditch at the same time. In this manner did these regiments not only cover the advance from the trenches of Major General Mackinnon's brigade, but they even preceded it in the attack. The troops of the light division on the left, under Major General Craufurd, and Major General Vandeleur, were likewise far advanced; and in less than half an hour from the commencement of the attack, the British troops were formed on the ramparts of the place, and the enemy were compelled to submit, after sustaining a severe loss. The loss of the British, particularly in officers, was very great. Major General Mackinnon was unfortunately blown up, by the accidental explosion of one of the enemy's expence magazines, close to the breach, after he had gallantly conducted to the attack the troops under his command. Major Generals Craufurd and Vandeleur were both severely wounded. Great quantities of ammunition and stores, and 153 pieces of ordnance, including the heavy train of the French army, were found in Ciudad Rodrigo. The governor, along with 78 officers and 1700 men, likewise fell into our hands.† (q)

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† In the preceding article we have confined ourselves strictly to the history of BRITAIN since the union of the crowns of England and Scotland, in the year 1606. The separate histories of ENGLAND, SCOTLAND, and IRELAND, and the statistics, manufactures, and commerce, &c. of these kingdoms, will be introduced with more propriety under their respective names.

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Britain, Brittany.

BRITAIN, NEW. See LABRADOR.

BRITAIN, NEW, the name of a considerable island in the South Pacific Ocean, situated at the eastern extremity of Papua or New Guinea, from which it is separated by the straits of Dampier, so called from the navigator who first explored this island. New Ireland is a long island, situated to the east of New Britain. The general aspect of the island, which is well peopled, is woody and mountainous, enlivened with beautiful streams and fruitful valleys. Cocoa nuts, yams, ginger, and other roots, are among the productions of New Britain. There are several volcanoes, both in this and in the circumjacent islands. Latitude between 4° and 6° 50′ south; and longitude between 148° 20′, and 151° 20′ east. See NEW GUINEA. (*w*)

BRITTANY, or BRETAGNE, one of the old provinces of France, bounded by Anjou, Normandy, and the Main on the east, by Poitou partly on the south, and by the sea on the west and north, so as to form a peninsula.

Brittany was formerly one of the most considerable provinces of France, both from its extent, and from the number and riches of its inhabitants. It stretched about 65 leagues from east to west, and about 44 from north to south. Its extent, according to Necker, was 1174 square leagues, or 1801 according to a later writer, M. Bonvallet Desbrosses. The first of these authors reckons the population at 2,276,000, being 1282 inhabitants for every square league; while the latter makes it 1,620,900, which gives only about 900 souls for every square league.

The climate of Brittany is mild, excepting near the coast, where the air is loaded with vapours. The soil consists chiefly of a gravelly sand, and the face of the country is diversified with hills and plains. In many parts there are extensive heaths, like those of Cornwall, some of which are covered to a great extent with forests of wood.

The principal productions of this province are wheat, barley, oats, rye, flax, hemp, and wood. In the fertile districts of Vannois and St Brieux, about one half of the barley and rye was exported to Spain and Portugal. The wines of Brittany are chiefly made in the neighbourhood of Nantes and Rhuys, and are generally consumed in the province; but when they are manufactured in great quantities, a considerable portion of them is converted into brandy. The annual consumption of wines sent from Bourdeaux was 30,000 tonneaux, each of which contains 460 Paris pints.

The forests of Brittany, which consist of oaks, beeches, chesnuts, &c. contain about 161,046 journaux, and 36 cordes.* Great numbers of cattle, and particularly cows, are fed in the pastures, and a considerable commerce in butter is carried on with Anjou. Yellow wax of the very best kind is made in Lower Brittany, and about 150 thousand weight is annually sold. Mines of lead are very abundant. The principal ones are at Carnot, Pontpean, Carcé, and Poullaouen. The iron mines are also very considerable, but they have not been wrought to any great extent. At Penhouet, where the river Oudon discharges itself into the Vilaine, there is an excellent quarry of slates, which was let at 15,000 livers a year, for nine years, and which can employ about 200 workmen, who manufacture nearly 50,000 weight a day. This slate, though smaller than that of Nantes, is sold at Rennes at 22 francs for every thousand weight. In the canton of St Nazaire, there is a field filled with loadstones. Those which lie on the surface have very little force, but those which are found below the surface are remarkably good. The compass, as might be expected, is subject to singular variations in this part of the country. Salt is made in great quantities in the villages on the bay of Bourgneuf, and in the territory of Guerande and Croisic. In common years, the quantity of salt which is manufactured amounts to 40,000 muids, each muid containing 144 minots, and each minot 100 poids de marc. Supposing the value of each muid to be 100 francs, we shall have 4,000,000 francs for the value of the salt which is annually produced. A very considerable fishery is carried on, on the coasts of this province; about 30 or 40 boats are employed in the fishing of the congo, or conger eels, of which nearly 400 quintals are caught every year. Those which are not consumed in the province, are sent to Bourdeaux, and are sold at the rate of 10 or 20 francs per quintal. The fishing of sardines and mackerel is carried on to a great extent at Port Louis, Belleisle, Audierne, and Brest, and great quantities are exported to Provence, Spain, Portugal, and to every part of the Mediterranean. Port Louis alone sells about 4000 barrels of sardines, and the inhabitants of Belleisle make about 1000 or 1200. There is a salmon fishery at Chateaulin, which rents at about 4500 francs annually.

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* A *journal* is 80 square cordes. A linear corde is 24 feet, and a square corde 576 square feet or 16 toises.

The principal manufactures of Brittany are sailcloths and cordage, fine cloths, and woollen stuffs. The principal rivers are the Loire and the Vilaine, which are united with the Ronce, or Drance, by means of a canal between Rennes and Dijon; the Coesnon or Couesnon, which is navigable for six or eight months of the year from the sea to the port of Angle; the Andre or Endre, which is navigable after it receives the waters of the Mandée; the Alne, which falls into the bay of Brest, and might be rendered navigable by sluices as far as Carhaix; the Morlaix; the Odes; the Blavet, and the Ille. The principal ports of Brittany are Brest, Nantes, St Malo, St Brieux, L'Orient, Vannes, Croisic, Port Louis, and Treguier. This province now forms the departments of Ille and Vilaine, Cotes du Nord, Finisterre, Morbihan, and the Lower Loire, which see under their respective names. (*j*)

BRIXEN, the *Sublavio* of the ancients, the capital of a district of the Tyrol of the same name, situated in the midst of hills and vineyards, to the south of the Brenner Mountains, at the confluence of the Rientz and Eysach. This place, which has not much of the appearance of a town, but rather resembles the village-like capitals of the democratic Swiss cantons, is well built, and the houses, which are painted, are adorned with piazzas. The public buildings are excellent, and the town has the advantage of several spacious squares. The palace of the bishop is rather mean, though capacious and well built. In the cathedral, the cloisters of which are covered with inscriptions, there are several paintings by the first Tyrolese masters, and particularly by the Unterbergers. The principal altar of the parish church, the painting of the crucifix by Schoepf, a pupil of Knoller, and the house for English ladies of rank, are among the principal objects deserving of notice at Brixen. Besides the cathedral, there are six other churches, of which the Benedictine church is the finest. The town is governed by its own magistrates, viz. two burgomasters, and two counsellors. The mineral waters in the neighbourhood are much frequented; and at Klausen, about three leagues from Brixen, there is a fine collection of paintings in the convent of Capuchins. The principal article of commerce is the red wine made in the surrounding country. East Long. 11° 50′, North Lat. 46° 35′. See Drummond's *Travels*, p. 16, and Kuttner's *Travels*. (*w*)

Briza,
Broadwood's
Temperament.

BRIZA, a genus of plants of the class Triandria, and order Digynia. See BOTANY.

BROADWOOD'S *Temperament of the Musical Scale*. For several years past, Mr James Broadwood, a piano forte maker in London, has been celebrated for the excellence of his instruments, as to perfection of workmanship and tone; and he has been supposed, also, to employ the best set of practical *tuners* for attending to the tuning of the instruments of his customers at stated periods: in pursuance, therefore, of the notice we gave at the end of our article BEATS, of our intention to present our readers with an account of all the most celebrated systems or methods of tuning keyed instruments that are known, constituting the most curious and important part of the science of harmonics, we avail ourselves of a communication which Mr Broadwood lately made to the Monthly Magazine, (Vol. XXXII. p. 106; see also pages 238, 321, and 424), to give what that gentleman calls his "practical method" of tuning, which we shall do in his own words; inserting, in parentheses, the numbers of *beats* made in one second of time, by the several tempered fifths that are to be tuned, as they result from our calculation, which will be given at length below, along with some other matters, by way of explanation.

Mr Broadwood, after mentioning that most tuners begin their operations with the note C, says, "I prefer tuning from A, the second space in the treble cliff, as being less remote from the two finishing fifths, than any other point of departure: the A being tuned *to the forte*, (that for this particular temperament should make 403.0443 complete vibrations in one second of time), tune A below an octave; then E above that octave, a fifth (beating *flat* .9744 times in one second); then B above, a fifth (beating 1.4598); then B below, an octave; then F♯ a fifth above (beating 1.0929); then its octave F♯ below; then C♯ its fifth above (beating .8183); then G♯ its fifth above (beating 1.2258); and then G♯ its octave below.

We then take a fresh departure from A, tuning D its fifth below (beating *flat* 1.3017); then G its fifth below (beating .8692); then G its octave above, then C its fifth below (beating 1.1618); then C its octave above, then F its fifth below (beating 1.5501); then B♭ its fifth below (beating 1.0350); then B♭ its octave above, then E♭ its fifth below (beating 1.3826). The five *fifths* tuned from notes below, are to be tuned flatter than the perfect fifth, and the six fifths tuned from tones above, must be made sharper than the perfect (i. e. the lower note is to be sharper than for a perfect fifth, thereby making the interval of the fifth flatter than the perfect as before), in a proportion I will endeavour to explain. If the whole be tuned correctly, the G♯ with the D♯ (which is the same tone on the piano-forte as E♭) will be found to make *the same concord*, that is, possesses *the same interval as the other fifths*,” but, we must observe, it is impossible that it should do this, since this bearing or resulting fifth will beat 1.3943 *sharp*, instead of .9175 *flat*, which it would beat if E♭ were altered to *the same interval* as the other fifths (or rather if it were made D♯), or .9231 *flat* if G♯ were altered to such interval (or rather, made A♭), but in either of these cases, it will be seen, that the former tuning would be undone and spoiled; but we must return to Mr Broadwood, who says, though not correctly, p. 107, “the old system of temperament (having a quint wolf, on douzeave instruments) is now deservedly abandoned, and the *equal temperament* generally adopted;”—“suppose two strings B and C in the middle octave of the piano-forte, to be, one *a full semitone* from the other,” (we have here used the major semitone S, or $\frac{15}{16}$, which is the interval B C in the natural or diatonic scale of all correct singers and violinists, and on the Rev. Henry Liston's patent organ, without any temperament in its harmony, now exhibiting at Flight and Robson's in London, being VIII–VII. See the Philosophical Magazine, Vol. XXXVII. p. 273), “with your hammer,” says Mr Broadwood, “lower down, or flatten C by *the smallest possible gradations*, until it becomes unison with B; with a tolerably steady hand, and a few trials, you will be enabled to enumerate forty gradations of sound, which I call *commas*.” Now, any one unacquainted with the subject, would think from this, that Mr Broadwood had discovered some hidden property of the full semitone, as he calls it, which disposed it to divide into just 40 smaller intervals, that the ear could appreciate so distinctly as to enable the tuner to make these commas all equal, than which nothing can be farther from the fact. Although he continues, “after having, by a little practice, acquired a distinct and clear idea of the quantity meant to be represented by the term comma, nothing more will be required to make the proper fifth, (for the temperament as above), after having tuned the fifth a perfect, or violin, or singing fifth, than to flatten the said perfect fifth, by lowering the string supposed to be tuning (the upper string), *one* of the afore-described commas;” yet we may further add, without fear of being contradicted by the results of impartial trials, that without counting the *beats* which we have given above for that purpose, it is impossible for any tuner, however practised or expert he may be, to approach this system within tolerable limits: When we say within tolerable limits, we mean such as are essential to the discrimination of one system from another, and of exhibiting the peculiarities of each, which are sufficiently distinguishable, when the tuning is correctly done, by the beats, a monochord will not do it, as we shall shew in the article SONOMETER: Much less can the thing be effected *by the ear*, directing the “mere mechanical operation” of the tuning-hammer, (or winch used to tune the pegs on which the wires lap,) as Mr Broadwood maintains, in a subsequent number of the Monthly Magazine, above referred to; and where, with equal pertinacity, he insists, that an *equal temperament* is produced by these commas of his: It is true, as Mr Farey has there observed, that Mr Broadwood has not expressly defined his “full semitone,” to mean the major semitone; but it is certain, that the ear could not discriminate the semitone or interval $(40\Sigma+3\frac{1}{3}\text{m},)$ or its parts, of which one-fortieth (1.0006552Σ) is the proper *isotonic* temperament, nor could it better appreciate another interval, $(48\Sigma+4\text{m}$, or $4\bar{d})$ or its parts, of which one-fortieth or 1.200786Σ $(=\frac{1}{10}\bar{d}$ or $\frac{6}{5}\Sigma+\frac{1}{10}\text{m}.)$ answers to the system of 12 equally-tempered fifths, but one of them *sharp*, which just occurs to us, without having been any where described, as far as we know, of which we shall say more under EQUAL-TEMPERED FIFTHS; and which, it is not very probable that Mr Broadwood intended, considering the degree of contempt with which he affects to treat the mathematical and only true or satisfactory method of treating this subject, which we are so anxious to see more generally understood by professors of music in general, and which would prevent them from being the dupes of every random or interested proposition respecting temperament, which is brought forwards.

As this temperament of Mr Broadwood's of which we are treating, or some other, which perhaps by chance, and without any fixed principle, his tuners practise, has obtained considerable celebrity in London, and being also the first that has occurred to be described in our work, we trust that we shall be excused by our more learned readers, for setting down the whole of the operations necessary for obtaining the *vibrations* and the *beats* of this system; as an example, of the rules that we intend to submit, for enabling those to understand and perform all the necessary calculations, who are acquainted only with common decimal arithmetic, the use of the algebraic signs $+$, $-$, $\times$, $\div$, and $=$, (for addition, subtraction, multiplication, division, and equality,) and the use of the common Tables of logarithms, (of which Callot's stereotype are the best,) than which nothing is more easy than to acquire a knowledge and facility in their use; and to which we are the more induced, from their being no works extant, to which we can refer, for familiar explanations or examples of the calculations necessary in considering musical temperaments.

By a reference to Plate XXX., in Vol. II., and article APOTOME, where it is explained, it will be seen that the reciprocal logarithm, or recip. log. of S, or the major semitone, is .0280287,2. This, divided by 40, or removing the decimal point one place to the left hand, and dividing by 4, we get .0007007,2, the recip. log. of the flat temperament of the fifth, in Mr Broadwood's system, $= 1.4297244\Sigma$: and, from the same Plate, we get .1760912,6, (not .17669, &c. as there engraved by mistake,) the recip. log. of V, or the fifth; the difference of which two last numbers is .1753905,4 = the recip. log. of the tempered fifth, to be added, wherever, according to the preceding directions, the tuning of it is upwards, and subtracted wherever the same is downwards, as in columns of the following table; in which the VIII = .3010300,0, is added when an octave is directed to be tuned upwards, and subtracted when the same is to be tuned downwards. It is right here also to explain, that the logarithm of the vibrations of the note A, at the beginning, and in the middle of the first column of the table, has been assumed by previous trial, or working backwards, such, that the note C may have a log. of 2.3802112,4, answering to the number 240 of vibrations, which is understood to be the present Concert *Pitch*, (see that article,) and to which the pitch of the instrument to be tuned, must be carefully adapted, according to the rules that will there be given, (see also Dr R. Smith's *Harmonics*, prop. xviii.) otherwise the beats here calculated will not apply.

Notes.	Logs. of Vib.	Vibrations.	Beats of the Fifths.
A	2.6053528,6 =	403.0443	
	—.3010300,0	÷2	
	2.3043228,6 A	201.52215 A	
		×3	
		604.56645	
	+.1753905,4	603.5920	=0.9744 ♭
		×2	
E	2.4797134,0 =	301.7960	
		×3	
	+.1753905,4 =	905.3880	=1.4598
		903.9282	
		×2	
B	2.6551039,4 =	451.9641	
	—.3010300,0	÷2	
	.3540739.4 B	225.98205 B	
		×3	
		677.94615	
	+.1753905,4	676.8532	=1.0929
		×2	
F※	2.5294644,8 =	638.4266	
	—.3010300,0	÷2	
	2.2284344,8 F※	169.2133 F※	
		3	
		507.6399	
	+.1753905,4	506.8216	=0.8183
		×2	
C※	2.4038250,2 =	253.4108	
		3	
	+1753905,4	760.2324	=1.2258
		759.0066	
		×2	
G※	2.5792155,6 =	379.5033	
	—.3010300,0	÷2	
	2.2781855,6 G※	189.75165 G※	
		×3	
		569.25495	

Notes.	Logs. of Vib.	Vibrations.	Beats of the Fifths.
A	2.6053528,6 =	403.0443	
		×2	
	—.1753905,4	806.0886	=1.3017 ♭
		807.3903	
		×3	
D	2.4299623,2 =	269.1301	
		2	
		538.2602	
	—.1753905,4	539.1294	=0.8692
		×3	
G	2.2545717,8 =	179.7098	
	+.3010300,0	×2	
	2.5556017,8 G	359.4196 G	
		×2	
	—.1753905,4	718.8392	=1.1618
		720.0000	
		×3	
C	2.3802112,4 =	240.0000	
	+3010300,0	2	
	2.6812412,4 C	480.0000 C	
		2	
	—.1753905,4	960.0000	=1.5501
		961.5501	
		×3	
F	2.5058507,0 =	320.5167	
	—.1753905,4	×2	
		641.0334	=1.0350
		642.0684	
		×3	
B ♭	2.3304601,6 =	2140.228	
	+.3010300,0	2	
	2.6314901,6 B♭	0456 B♭	
	—.1753905,4	×2	
		856.0912	=1.3826
		857.4738	
		×3	
E ♭	2.4560996,2 =	285.8246	
		×2	
		571.6492	
			=1.3943 ※

Broadwood's Temperament.

The first column in the above Table or process, had better be calculated through, as above directed, and written wide, before proceeding to the second, and let the resulting log. of G※ be deducted from that of E♭, which, in the present case, will give .1779140,6 for this bearing or resulting fifth, from which, taking the perfect fifth .1760912,6, we get .0018228,0, the recip. log. of the quint wolf or sharp and fifth in Mr Broadwood's system, =3.719106Σ; and by reference to Mr Farey's 15th corollary in the *Philosophical Magazine*, vol. xxxvi. p. 374, or to our article Temperament, we find, that 11 × temp. of V — đ, ought to give this same Vth wolf; or, 11 × .0007007,2 — .0058851,4 = .0018227,8; which differing only 2 in the eighth place of logarithms, shews that all the several operations in this column have been correctly performed; otherwise they must

Brocade.

have been gone over again and corrected. We next proceed carefully to take out the *numbers* in the logarithmic Tables, answering to the several notes marked by the letters in front of the first column, and place them opposite in column two, after the sign =; the next operation is, to halve all these numbers where an octave has been tuned downwards, as from A, B, F♯ and G♯, which are to be placed below (and opposite to their respective logs.) in the first half of the Table, and to double all those where an octave has been tuned upwards, as from G, C, and B♭, to be placed also below, in the lower half of the table, as the letters placed after the second column indicate.

We now turn to the new and correct theorem for calculating Beats by our 4th method, and multiply the least number of vibrations by 3, and the greatest number by 2, (the terms of the ratio, $\frac{3}{2}$) in each corresponding pair of vibrations of the fifths, and place the products below and above in the intervals in column 2; by which means two numbers nearly alike will come together, ready for subtracting to obtain the beats, that are set opposite in column 4, to each of these pairs of products; by which process, all the trouble and risk of mistakes in transcribing numbers are avoided, and the whole operation may be preserved for future use or revision. The products for G♯ and E♭, at the two extremities of the parts of the Table, may easily be deducted to obtain the beats, where they stand, and without transcribing. Methods so very simple and easy as these, of obtaining the beats of the fifths, (and of all the other concords by the same theorem that has been referred to,) to the utmost degree of exactitude, will, we hope, stimulate many to apply them in the calculations on other systems, who have been deterred by the very operose method hitherto known and recommended for the purpose. In practice, the index and decimal point of the logarithm, in column 1, may very well be dispensed with. (ξ)

BROCADE, in the manufacture of cloth, signifies that species, in which a certain portion of woof is interwoven, in order to produce fanciful variety upon particular parts of the superficies of the cloth. In this respect it may, without any violation of propriety, be taken as a generic term, under which all the varieties of spot, or japan weaving, may be included. As an article of commerce, it can never be of material importance, in a country where the wages of labour are necessarily so high as they are in Britain; for hitherto, at least, no attempt to introduce the aid of machinery has been in any degree practically successful, and the tedious and fatiguing process of mere manual labour will ever preclude competition with those showy, although flimsy and inferior substitutes, which can be afforded at less than one-third of the price. This manufacture, and the whole range of spotting, differs from the damask, and other ornamental kinds, in this respect, that the woof is only interwoven, where the figure is to be formed, an entirely distinct woof being employed to form the ground-work of the fabric. The requisite machinery for this purpose will be found by referring to Plate CIV. Fig. 1; and the remaining figures will serve to illustrate how far the difference between brocade, japan, and common spot weaving, consists in the construction and mounting of the loom; and how far, subsequently, in the manner in which the loom, when mounted, is employed by the operator. In what is properly termed the brocade, or finger flower, the whole of every flower is interwoven merely by the hand, and this constitutes the enormous expence; resembling, in some degree, that species of weaving which has been brought to such a wonderful degree of perfection on the continent, as in many instances to rival even the most masterly efforts of painting, and which is distinguished by the name of *Tapestry*.

The general appearance of a brocade loom, Fig. 1, which is a horizontal plan, will serve to convey some idea. In this figure, the warp is only represented where the figures are to be shown; the remaining warp being, in every respect, similar to that of plain or alternately woven cloth. When the warp is opened for the common texture, the woof is interwoven exactly as in a plain fabric; and where a figure is to be formed, a separate body of woof, much coarser, is passed, by the operation of the hand, through those portions of warp which are successively opened, according to the form of the design or pattern. These two operations are performed alternately, and thus the fabric is formed, the general texture being effected by a shuttle, and the ornamental by manual labour. In the general mode of performing this, the weaver is assisted by a boy or girl, who sits along with him, and assists him in passing the ornamental woof through the warp which is raised. If, in Fig. 1, A, B, and C, are supposed to consist of three portions of warp, set apart for the ornamental figure, and if it be also understood, that any number of these may be included in one web, according to its breadth, its fineness, and the number and magnitude of the flowers required, the general principle will be at once comprehended. Let the heddles which open the warp be represented at DD, and suppose every other part to be exactly similar to any other common loom, the lay being entirely omitted. Any portion of the warp may then be opened, by raising the particular heddles; and when this is done, the ornamental woof which forms every flower, may be passed through by the weaver and his assistants. Let plain woof be then passed through to form the general fabric, and the desired effect must be produced. This is of itself sufficiently obvious; but the means by which it is reduced to practice, and the drawings which practical artificers use as guides, are of importance to those who are professionally obliged to use them; and these will be found in the horizontal plan; for which see Fig. 2. Plans of this kind will not only convey a very inadequate idea of what is intended by them, but would really mislead any man, only conversant with the rules of mechanical drawing. They are, however, those to which professional weavers always have recourse; and it is, therefore, necessary, in order to prevent confusion of idea, and even positive error, to explain their principle. They may be considered as horizontal plans of a weaving loom, but they consist of two entirely separate and unconnected parts, which are placed together merely for the sake of conveniency. If we can suppose that an architect, for the use of practical builders, would plan two separate floors of a house, and represent them as parts of two adjoining houses, the idea will be at once correctly formed. Thus, the right hand part of the figure, from A to B, represents the heddles, and the left hand part, from B to C, the heddles which, in actual practice, are really perpendicularly under the former. The first of these, namely the portion from A to B, represents what is termed the draught of a web, or that order of succession in which the warp is inserted in the different leaves of which the heddles consist. The second portion from B to C, serves to guide the person who arranges the machinery of a loom, how to form the connections between the heddles and the levers, or treddles, by which they are to be moved. In the article CLOTH MANUFACTURE, the general principle of connection, and the ranges and powers of the respective levers, will be found sufficiently explained; their particular application, therefore, is only necessary in this place.

For the draught of the warp, or its order of insertion in the heddles, it is, in the first instance, necessary to ascertain whether the two sides of the pattern are similar or dissimilar; for in the former case only one half of the heddles will be requisite, which are indispensible in the latter. By similarity of the sides, the following meaning is to be understood. Let an ornament or flower consist of any given number of threads, as 20, 40, 60, 80, or 100; then if, in the first instance, the 10 threads to the left form an appearance exactly similar to the 10 threads to the right, but inverted upon the cloth, the pattern is similar, and may be wrought with 10 leaves; if not, it is dissimilar, and will require 20, exclusive of what may be requisite for plain cloth in either instance. The pattern in the figure is dissimilar, and therefore requires twice the number of leaves which would be necessary in one diverging equally from the centre. In this pattern, 25 leaves are used, independently of that in the front, through which every alternate thread is drawn, in order to form the ground of the fabric. Hence, if plain cloth be required, as it is in the intervals between the flowers, the aggregate of the 25 leaves, including one half of the warp, while the front leaf singly contains the other half: these two, wrought alternately, will produce the plain, whilst the others may be so varied in succession as to form any flower whatever, whose range does not exceed the number of threads contained in those leaves. The draught of the warp is uniform and successive from left to right, and hence the whole fabric may be covered with flowers if required; or the weaver may, at his discretion, fill only every second, third, or fourth, with the ornamental woof, and thus produce a pattern richer or slighter, as may be found convenient.

The number of treddles necessary are 22. Of these, the two represented at the right hand, and distinguished by the letters A, B, are intended for the plain part of the fabric; for A, when depressed, will raise the front leaf, containing one half of the warp, and B will exactly reverse the effect, sinking the front leaf and raising all the others. The remaining treddles, when used, will raise in varied succession the ornamental part, and produce the pattern intended. The cross lines drawn in the figure, are very similar to those in the design paper, which is the general rule by which weavers are directed in their operations; and a copious account of which, illustrated by references to the most extensive species of ornamental workmanship, will be found in the article CLOTH MANUFACTURE. Let whatever part of the pattern, where the warp is to be raised above the woof, be represented by the marks and dots upon the intersections of the heddles and treddles, and an exact rule will be given to the weaver for the application of his raising cordage. In a part of these the whole intersection is filled, which assimilates the appearance to that upon design paper; in the remainder, dots only are used, which is the way generally adopted in actual practice. These marks, therefore, denote raising cords, and where no mark is applied, sinking cords are to be used; so that the whole warp may be affected either in one or the other way, by the pressure of every individual treddle. Upon this general rule depends the formation of every flower which can be woven upon cloth, whether incorporated into the fabric, as in damask, or effected by separate woof, as in brocading.

The cording marks, in plans of this description, may in general be reduced to three different descriptions:

1st, Those in which every part of the figure is independent and dissimilar.

2d, Those in which the two sides are similar, but where the top and bottom differ.

3d, Those in which every part diverging from the centre, is similar to that opposite to it.

Of the first of these, the figure to which reference has been already made, is an example; and this, whether woven as a brocade, or as a spot, is the most comprehensive kind.

PLATE CIV. Fig. 3.

In Fig. 3, will be found an illustration of the second; and this we shall suppose is to be woven like what is termed a common spot.

Spotting, in point of show and effect, is considerably inferior to brocading; but its great difference in labour, and consequently in price, gives it many advantages over the former, which is much too expensive for extensive and general use. Spotting is formed by the insertion of woof, much coarser than what forms the general fabric, and passes clear of every part of the texture, the figures only excepted. The intervals of the course woof are clipped away with scissars after the cloth is taken from the loom, and before it is sent to be bleached and finished. From this circumstance, all spots are liable to a defect in appearance, from which brocades are totally exempted. If this spot be supposed to represent a club, only one half of the figure is necessary for the plan of the cording; for in the way in which the drawing of the warp is done, two threads upon opposite sides of the Figure being inserted in the same leaf, the sides will be similarly formed by half of the mounting used in dissimilar or independent spots. The mounting here consists of two separate and independent figures, which are to be wrought alternately; and any portion of the warp being inserted in the plain leaves A and B, the figures may be either contiguous, or removed to any distance which may be thought proper. A spot where all the figures are contiguous, without any intervention of plain cloth, is called an *allover*; those where the plain spaces are equal to those allotted for the spotting, are denominated *half covers*, and so of others. This spot is contained in 32 leaves, of which A and B are reserved for the plain intervals, and the remaining 30 for the two spots, 15 being allotted for each.

PLATE CIV. Fig. 4.

In Fig. 4, is given the plan used for the japan or paper spot, which is more brilliant in appearance, but vastly more expensive in apparatus, and more tedious to work than the common spot. The difference of the japan from the common spot, consists in the latter being as completely interwoven with the cloth as any part of the fabric, whereas the former is only raised or flushed on one side. In the common spot, therefore, each alternate thread is drawn into the same leaf, and consequently one half of the whole warp is wrought exactly as a plain piece of cloth, whilst the other half only is reserved for the fanciful or decorative part. In the insertion of the two kinds of woof, the finer sort, which forms the ground or body of the texture, is passed twice between the warp for every time that the coarse or spotting woof is used. But in the japan spot, every thread of that part which forms the figure, is drawn independently, and consequently twice the number of leaves become necessary, and as, in this case, one thread of each kind of woof is alternately used, the spotting woof is as completely incorporated into the fabric as any other part of it. In the figure, the plain leaves A and B are only used for the intervals between the spots or figures; and were the pattern a complete allover spot, they would only be used for a few threads or splitfuls of warp at each side, in order to form a plain selvage or list. The marks for the order of drawing the warp through the fanciful part of the mounting, being placed upon exactly the same plan as formerly described, a mere inspection of the figure will be sufficient for those who have studied the former plans, or who are previously acquainted with this mode of elucidation, which is universal among the best informed operative weavers of fanciful cloth, without almost any further explanation. The whole, it will be evident, may be reduced to four compartments, two being allotted for each flower; and were the flowers in regular succession, without being placed so as to form the appearance of a diamond or diagonal row, only one half of the apparatus would be necessary.

The Japan spot, although less tedious, and consequently less expensive than the brocade, is still sufficiently so to preclude it from ever becoming an article of general use, excepting with the opulent; and, consequently, it never can be an article of extensive manufacture, more especially as it is rivalled, even in point of show, by many cheaper substitutes. Abstracted, however, from the original expense, it will perhaps be found, eventually, a more desirable article, even in point of economy, than many of the more flimsy substitutes which have superseded it. To those, therefore, who can afford the original purchase, and who are not too prone to be carried away by novelty, it will be always desirable; for, in point of neatness, strength, and durability, if carefully used, it is decidedly superior to most of the light ornamental goods which are manufactured, either in India or in Britain.

Some attempts have been made to save time, and supersede the necessity of employing a boy or girl to assist the operator in *fingering* brocades, which is the term applied to the interweaving of the coarse woof by the hand. These have been chiefly confined to operative tradesmen, who, being neither intimately acquainted with those minutiæ of mechanical science, which are so peculiarly necessary to guard an inventor from great error, nor of the ability to expend either much time or money in maturing their plans, were not very likely to prove eminently successful.

The competition of cheaper articles may be assigned as a sufficient reason why more opulent manufacturers could have little inducement to embark capital in the promotion of such schemes; and consequently both, after a few, perhaps insufficient, experiments, were abandoned. If a demand, however, really existed for the article, either of them seems sufficiently capable of effecting its purpose, and even of producing a very considerable saving. In Fig. 5, a small additional lay, containing a number of boxes, each of which is to work a small independent shuttle, is represented. This lay has two motions. The first serves to raise or sink it at pleasure; and the second from right to left, and *vice versa*, by a sudden jerk, throws the shuttles from each box to that next it. This lay being suspended immediately in front of the large one which contains the reed, and which is in every respect the same as the common lay for weaving plain cloth, is sunk between the intervals of the warp, when the small shuttles are to be used, and by a sudden jerk all the small shuttles are thrown across. The front lay being then raised, the woof is struck home by the other lay; the fine woof for the ground of the texture is then inserted, as in plain weaving, and the operation of the small lay repeated as often as the particular form or size of the flower renders it requisite. The places for the small shuttles are distinguished by the letters A A, B B, &c. each letter being supposed to show the place of one shuttle in each of its alternate positions. As this apparatus is very similar in the general principle to that of the incle loom, there is no reason to despair of rendering it effective, whenever a sufficient stimulus for the exertion of talent and industry is held out, by a want of the article which it is intended to produce. In its present state, it can only be considered in the light of a rude and imperfect attempt at improvement.

The other invention, which was made by Mr Austin of Glasgow, many years ago, like the former, was neglected after a partial and imperfect trial. In this, the effect for which the small boxes in the former are designed, is produced by the revolution of segments of a circle, Fig. 6. each containing a small bobbin of woof. These segments, which were composed of brass, had an aperture left sufficient to allow the warp, forming the extreme breadth of each flower, to rise without obstruction, and each segment was so constructed as to revolve freely in a groove. The circumference of each was cut like a wheel, and motion given to the whole by a rack moved alternately from side to side. Thus the bobbin intersected the open warp at every revolution, and the aperture in the segment allowed a free passage to the warp. In this, like the former, there appears rather a rude and not impracticable plan, than a maturely digested and practically efficient improvement. Both seem to require much farther amelioration; and they are inserted, rather to shew what has been done, than as complete and effective models of mechanical efficiency. (J. D.)

BROCKEN, the name of the highest of the Hartz mountains in Saxony. This mountain, which, on account of its natural curiosities, is much resorted to by travellers, may be ascended by two great roads for carriages, or by five foot-paths. The best method of ascending it on foot is to take the foot-path on the side of Schiercke, and to descend by the foot-path of Ilsenbourgh. Between Schiercke and Heinrichshoke there are immense blocks of granite, like those of Mount St Gothard, and large tables of granite, equal to those on Mount Grimsel. In order to facilitate the ascent of the mountain, the reigning Count of Stollberg Wernigerode has cut a new road from Wernigerode, where he has erected a large and well built inn, from a design of the architect Barth, which is protected by conductors, and which resisted the terrible storm of November 1800. In this delightful inn, which, from the immense height at which it is placed, commands a most extensive view, the traveller is astonished to find all the accommodation and luxuries of the first hotels in Europe.

At the summit of the mountain there are several masses of fragments, and blocks of granite, called the altar and the sorcerer's chair. A clear spring of water is called the magic fountain, and the anemone of the Brocken is denominated the sorcerer's flower. These names derive their origin from the festival of the great idol Crotho, whom the Saxons worshipped in secret, at this immense and solitary height, while Christianity was extending her peaceful conquests over the plains below. From the highest summit of the Brocken is seen a plain about 70 leagues in extent, peopled with five millions of souls, and occupying nearly the two hundredth part of the whole of Europe. The following are the heights of the mountain, as taken by different observers:

	Old Paris feet.	
Above the North Sea, - -	3,455.	Rosenthal.
-	3,163.	Lasius.
	3,022.	Zimmerman.
Above Hanover, - - - -	3,246.	Rosenthal.
	3,184.	De Luc.
Above Nordhausen and Gottingen, - - - - -	2,926.	Rosenthal.
Above Oderbrucke, - - -	1,081.	Rosenthal.
	1,038.	De Luc.
Above the old hotel, - -	326.	Rosenthal.

The principal curiosities of the Brocken are—the insulated rock of Ilsenstein, rising to a height of 320 feet, and the rocks of Schnarcher, Rennecke, and Hohneklippen, which are of inferior height; the fall of the river Bode on the side of Rosstrapp; the Rosstrapp, which is a wall of rocks cut perpendicularly, and forming a precipice of from 500 to 800 feet; and the Oderbrucke, which is a dike consisting of immense blocks of granite, which stops the course of the Oder, and makes it form a huge lake of 10,138 square toises. In addition to these objects of curiosity, the picturesque road along the Oderbrucke, the canal of Rehberg, and the grottos, called Baumanshole and Bielshole, are worthy of particular notice. The latitude of the top of the Brocken is 51° 48′ 29″, and its longitude 28° 16′ 20″ east from the Ferro Isles. An account of the botany of this and the neighbouring mountains may be found in Gatterer's *Anleitung den Harz zu bereisen;* and an account of their mineralogical productions will be found in Lasius' *Beobachtungen über die Harzgebirge.* See HARTZ. (*j*)

Brocklesby

BROCKLESBY, RICHARD, an eminent physician, was descended of a wealthy and respectable Irish family; and was born at Minehead, in Somersetshire, on the 11th of August 1722, when his mother was on a visit to her relations. His parents, who resided at Cork, belonged to the society of Quakers, and seem to have been more anxious to imbue the mind of their son with the elements of a liberal education, than with the peculiar tenets of their sect. At the academy of Ballytore, where he went at an early age, he contracted an acquaintance with the celebrated Edmund Burke, which grew into the warmest friendship, when both of them appeared as public characters in London. After finishing his grammar education, Mr Brocklesby attended a course of medical lectures at the university of Edinburgh, and afterwards went to Leyden, where he took his degree of doctor of medicine in 1745, and delivered a thesis, entitled *De Saliva Sana et Morbosa.* Upon his return to England in 1746, he settled as a physician in London; but, like all young practitioners, his time was less occupied in the practice of his profession, than in accommodating his wants to the narrowness of his income. His fame, however, began to extend, after the publication of his Essay on the mortality of the horned cattle. In the year 1751, he was admitted a licentiate in the Royal College of Physicians. The honorary degree of doctor in medicine was conferred upon him by the university of Dublin in 1754; and he received the same honour from the university of Cambridge in 1755. In June 1756, he was elected a fellow of the Royal College of Physicians.

The practice of Dr Brocklesby now began to extend with his reputation. The mildness of his disposition endeared him to his professional brethren, while his kind attention to the wants and diseases of the poor, gained him the affections of a more extensive circle. In the year 1758, he was appointed physician to the army by Lord Barrington; and, in this capacity, he served in Germany during the greater part of the seven years war. He was afterwards chosen physician to the hospitals for British forces; and he returned to London in 1763, a few months before the termination of the war. In 1764, he published, in one volume, 8vo, *Economical and Medical Observations from* 1738 *to* 1763, *tending to the improvement of Medical Hospitals.* This work, which contains the valuable results of his experience on the continent, abounds with excellent practical remarks

Broker.

sixteen days, he pays interest for one month and a half; but after the first fourteen days, the pawn-broker may take for the whole month.

The pawn-broker is required to make entries and give duplicates. If he refuses to deliver up goods pledged within one year, on tender of the money lent and interest, a justice is empowered, on conviction, to commit him till the goods be delivered up, or reasonable satisfaction be obtained. After the expiration of one year, pawned goods may be sold by public auction; being exposed to public view, and catalogues of them published, and two advertisements of sale inserted in some newspaper, at least two days before the first day's sale, under a penalty of L.5 to the owner. If pawn-brokers receive notice from the owners before the expiration of a year, they are not allowed to dispose of the goods until three months shall have expired from the end of that year. They must enter in their books an account of sales of all goods pawned for more than 10*s.*; and, in case of sale, the overplus to be paid upon demand, within three years, to the owner, deducting interest and costs, under a penalty, upon refusal, of treble the sum lent, to be levied by distress.

Pawn-brokers are not allowed to purchase goods in their custody, or suffer them to be redeemed for that purpose. They are not to lend money to any person appearing to be under the age of twelve years, or intoxicated; nor to purchase duplicates of other pawn-brokers; nor to buy any goods before eight in the morning, and after seven in the afternoon; nor to receive any goods in pawn before eight in the morning, or after nine at night, between Michaelmas and Lady-day; nor before seven in the morning, or after ten at night, during the remainder of the year, excepting the evenings of Saturday, and those preceding Good Friday and Christmas day. They are not to carry on the trade on any Sunday, Good Friday, or Christmas day. Pawn-brokers offending against the act, in cases where no penalty is provided, shall forfeit L.5 for every offence; and, in all cases, complaint must be made within twelve months. But the act does not extend to pledges for money above L. 10, nor to persons lending money upon goods at 5 *per cent.*

Any person who shall fraudulently pawn the goods of another, shall, upon conviction before a justice, forfeit 20*s.* and the value of the goods so pawned; and, failing to pay, shall be committed to the house of correction for not more than three months, nor less than one. Persons counterfeiting or altering duplicates, may be committed by a justice to the house of correction for a similar period. If any person shall offer to pawn goods, refusing to give a satisfactory account of himself and them; or if there be reason to suspect that the goods are stolen; or if any person, not entitled, shall attempt to redeem pawned goods, they may be taken before a justice for examination; who, if there appear cause, may commit the offender to be dealt with according to law, provided the nature of the offence shall authorise such commitment by any other law; or otherwise, for a period not exceeding three months, nor less than one. A justice may also grant a search-warrant, and a peace-officer break open doors, and restore the goods, if found, to the owners. (z)

BROMELIA, a genus of plants of the class Hexandria, and order Monogynia. See Botany, p. 182, and Pine Apple.

BROMLEY, a market town of England, in the county of Kent, is situated on the river Revensbourn, 10 miles south-east from London. It is a clean, well-built, straggling town, but containing nothing worthy of notice, except the hospital erected by Dr Warner, Bishop of Rochester, in the reign of Charles II., for twenty poor clergymen's widows. It was the first endowment of the kind in England, and has been considerably augmented by several additional charitable bequests. In 1756, Mrs Betenson of Bradbourne left L.10,000, for the purpose of erecting ten additional houses; and since that time, Mr Pearce has bequeathed L.12,000 for a similar purpose. So that by these means, the number of houses is now doubled, and the annual allowance to each of the widows on Bishop Warner's foundation is L. 30, 10s., with coal and candle; and L. 20 to each of the others; with a salary of L. 86 to the chaplain, who must belong to Magdalen College, Oxford. The church of Bromley is a spacious edifice, consisting of a nave, chancel, and aisles; with an embattled tower at the west end, surmounted by a cupola. Its north aisle was rebuilt in 1792, to the expence of which Bishop Thomas contributed L. 500. Bromley has also a charity school, for educating and clothing thirteen boys and as many girls. Its market-house is a large old building standing on wooden pillars; and its fairs are on the 14th of February and the 5th of August.

Near the town is the palace of the Bishop of Rochester, which was first erected in 700, in consequence of his having received the manor of Bromley as a gift from King Edgar; and it has continued to be the residence of the bishops of that see till the present time. The old building was pulled down by the late Bishop, and a plain brick mansion erected in its stead about the year 1777. In the vicinity is a spring, which is said to possess the same qualities as the water of Tunbridge wells, and which was much frequented in monkish times, and held in high estimation. Bromley contains 424 houses, and 2700 inhabitants. See Wilson's *History of Bromley*, and *Beauties of England and Wales*, vol. viii. p. 1353. (t)

BROMSGROVE, a market town of England, in the county of Worcester, is situated near the source of the river Salwarp, 12 miles from Worcester, and 116 north-west from London. It is rather irregularly built, but has a very handsome church, with windows of painted glass, and a tower and spire, which are the neatest in the county. The church stands upon an eminence, and is approached by a flight of 50 steps; and contains several fine monuments, among which are those of Judge Lyttleton, Bishop Hall of Bristol, Sir Humphrey Stafford, Sir John Talbot, and a daughter of Henry VII. It has a good grammar school, founded by Edward VI. for educating and clothing twelve boys, which has been additionally endowed by Sir Thomas Cooks; and also several alms-houses. Bromsgrove has some flourishing manufactures of woollen and linen cloths, nails, needles, and ing.

other hardware. It is governed by a bailiff, recorder, and aldermen, and a court baron is held in the town-hall, by the lord of the manor, every three weeks, for the recovery of debts under 40s. In 1801, this town contained 1178 houses, and 5898 inhabitants, of whom 1208 were returned as employed in trade and manufactures. It has two annual fairs for linen cloth, cheese, and horses, and a weekly market on Thursday.

In the neighbourhood, are Grafton manor, the ancient residence of the Earl of Shrewsbury; Dodford priory; and Hewell-Grange, the seat of the Earl of Plymouth. See Nash's *History of Worcestershire*. (*p*)

BROMUS, a genus of plants of the class Triandria, and order Digynia. See BOTANY, p. 106.

BRONCHOCELE. See SURGERY.

BRONZE, the name of a mixed metal, which the ancients employed for casting statues and other ornaments. According to Vasari, the bronze of the Egyptians consisted of two-thirds of brass, and one of copper; and Pliny informs us, that the Greeks added to the brass one-tenth part of lead, and one-twentieth part of silver.

In casting bronze figures, particular attention must be paid to the formation of the mould. The pattern from which the cast is to be made must have a mould made upon it, with a mixture of one-third of plaster of Paris, and two-thirds of brick-dust. Its thickness should be proportioned to the weight of the figure; and small air-holes, opening upwards, should be made in the joints, to give free passage to the air, which is thrust out by the entrance of the metal. Over the interior surface of the mould there should be spread neatly a layer of clay of the intended thickness of the metal. When this is done, the concavity, which is bounded by the layer of clay, is to be filled with the composition of plaster of Paris and brick-dust already mentioned, which will form the core. When the figure is long, strong bars of iron must be laid in the mould as a support to the metal figure, and round these the core must be cast. The mould is then opened, the layer of clay taken, and every kind of dampness expelled, by drying the mould and core with charcoal or lighted straw. The core is then replaced in the mould, where it is supported in its proper position by short bars of bronze, which run through the mould into the core. The mould being strongly fortified with iron bars, and fixed in a right position, the liquid bronze is poured into the mouth of the mould. (π)

BRONZING, is the art of imitating bronze, or of communicating to figures in wood, ivory, plaster, &c. that greenish rust which distinguishes the bronze figures of the ancients. The golden bronze is made of the finest and brightest copper dust, and when it is wanted of a red colour, a small quantity of red ochre, well pulverised, is added. They are both put on with varnish, and the body to which they are applied is immediately dried over a chafing dish, to prevent it from turning green.

The following method of bronzing figures is extremely simple. After having covered the figure with a coat of gum water, mixed with a little minium, take a little fish glue, dissolved in spirits of wine, by exposing them in a warm place, and add to it some saffron; then take the filings or dust of any metal which it is wanted to imitate, and apply this, when mixed with the glue, to the figure, with a hair pencil.

In bronzing copper, the Chinese first rub it with vinegar and ashes, till it is well polished. When the copper is well dried in the sun, they cover it with a coat, made in the following manner. Take two parts of verdigris, two parts of cinnabar, five parts of sal ammoniac, two parts of the bill and liver of ducks, five parts of alum; pound and mix them well, and form them into a clear paste. The copper, after being covered with a coat of this paste, is dried, cooled, and washed, and the same operation is repeated about ten times.

Iron may be bronzed merely by rubbing it when hot with the hoof of a cow, and with oil. For farther information on this subject, see a Paper by Macquer, in the *Memoirs of the French Academy for* 1767; Birch's *History of the Royal Society*, vol. i. p. 103; and *Supplement de l'Encyclopedie*, tom. ii. p. 72. (π)

Brooke.

BROOKE, HENRY, an ingenious author, though of eccentric and irregular talents, was born in Ireland, in the year 1706. In the earlier period of his life, he became a pupil of the celebrated Dr Sheridan, and afterwards prosecuted his studies at Dublin college, whence he removed to the Temple.

Having returned to Ireland, he there privately married his cousin, an amiable young woman, to whom he had been appointed guardian. With her he lived, for some time, in domestic retirement, until the increase of his family compelled him to have recourse to his literary talents, in order to make his income adequate to their maintenance. With this view he repaired to London, and, in 1735, wrote his philosophical poem, entitled, *Universal Beauty*. Thereafter, he again returned to his native country, and engaged in the practice of the law; but his inclination carrying him to literary pursuits, he revisited the metropolis, and offered his tragedy of *Gustavus Vasa* to the stage. The strong sentiments of liberty with which this play abounded, excited the attention of government, and its public representation at the theatres was authoritatively prohibited. But the author was more than indemnified for any pecuniary loss which he might have suffered, in consequence of this proceeding. His private friends, and the political party attached to Frederick, Prince of Wales, encouraged him to publish the play by subscription, in 1739; and this measure succeeded so well, that Brooke derived from it more emolument than he probably would have done, had the piece been exhibited on the stage. Finding his expences, however, still too great, when compared with his limited income, he was reduced to the necessity of quitting the house he had taken at Twickenham, dismissing his servants, and again retiring to his native country.

In 1745, he produced his tragedy, entitled, *The Earl of Westmoreland*, which was represented on the Dublin theatre; and, in the same year, he published his *Farmer's Letters*. About this time, too, he obtained the appointment of barrack-master from the Earl of Chesterfield, then lord-lieutenant of Ireland. In 1747, he contributed three pieces to Moore's *Fables for the Female Sex*, of which *The Female Seducers* has been peculiarly admired. His tragedy of *The Earl of Essex* was acted at Dublin in 1749, and at Drury-lane in 1760. It does not appear certain whether any of his other dramatic pieces were ever publicly performed at any theatre.

Brooke now lived in rural retirement, having united his family with that of an only brother; both residing together in the most perfect harmony. His mind, which had always been strongly impressed with devotional feelings, became, at length, a prey to the gloomy and withering influence of methodism, which gradually depressed his spirits, and deranged his intellects. The embarrased state of his pecuniary circumstances, combined with the loss of his wife, after a happy and affectionate union of nearly 50 years, and the death of a favourite child, must have contributed, in no slight degree, to promote his disposition to melancholy and depression. In 1762, he published a treatise, entitled, *The Trial of the Roman Catholics*; and, in 1766, his novel, *The Fool of Quality*, —a work which attracted considerable attention, and of which the last volumes displayed the prevailing bias of the author's mind. The decay of his faculties, however, was still more sensibly indicated by his *Juliet Grenville*, a novel which he published in 1774. He died in the month of October 1783. His works, exclusive of the novels, were printed together in four volumes octavo, 1780, but are now little read. See the life of the author prefixed to his works. (z)

BROOKLYN, Battle of. See Vol. I. p. 670.

BROOME, William, an English poet, was born in Cheshire, of poor parents; and after being educated upon the foundation at Eton, was, by the contribution of his friends, sent to St John's college Cambridge, where he obtained a small exhibition. During his education in that university, he was so fond of writing verses, that, among his companions, he was known by the name of Poet, although his juvenile pieces by no means entitled him to that appellation. He next appeared as a translator of Homer into prose, in conjunction with Ozell and Oldisworth; but that work has long ago fallen into oblivion.

It, however, paved the way for his introduction to Pope, who employed him to make extracts from Eustathius, for the notes to the translation of the Iliad; and in the volumes of poetry published by Lintot, commonly called "Pope's Miscellanies," many of his early pieces are inserted. Pope afterwards employed him, in conjunction with Fenton, in translating the Odyssey, and assigned him the 2d, 6th, 8th, 11th, 12th, 16th, 18th, and 23d books of that poem; together with the task of writing all the notes. For the four books translated by Fenton, Pope paid L. 300; while Broome received no more for the whole of his part of the work than L. 600. This scanty payment produced a quarrel betwixt him and his employer, which ended in a complete breach of their friendship. Broome charged Pope with an avaricious spirit; and Pope, in revenge, gave him a place in the *Dunciad*; quoted him in the *Bathos* as a proficient "in the art of sinking;" and compared him to a "parrot, who repeats another's words in such a hoarse old tone, as to make them seem his own."

He afterwards published a miscellany of poems; and, in the latter part of his life, amused himself with translating odes of Anacreon, which appeared in the *Gentleman's Magazine*, under the name of *Chester*. In the church, he never rose higher than a rector, and died at Bath in 1745.

"Of Broome," says Johnson, "though it cannot be said that he was a great poet, it would be unjust to deny that he was an excellent versifier: his lines are smooth and sonorous, and his diction is select and elegant. He had such power of words and numbers, as fitted him for translation; but, in his original works, recollection seems to have been his business more than invention. His imitations are so apparent, that it is part of his readers employment to recal the verses of some former poet.

His assistance was deemed so necessary to Pope, in the translation of the Odyssey, that it gave occasion to this humorous distich,

"Pope came clean off with Homer; but they say
"*Broome* went before, and kindly *swept* the way."

Johnson's *Lives of the Poets*, vol. iii. (A. F.)

BROSELEY, a market town of England, in the county of Salop, is situated on the river Severn, which separates it from Madeley, 146 miles N. W. from London. It possesses considerable iron works, where cannon and all kinds of cast iron articles are founded; and also a manufactory for glazed tobacco-pipes. But it is chiefly remarkable for a curious burning spring in the neighbourhood, which was discovered in June 1711. It was first announced by a terrible noise in the night-time, which awaked several people that lived near it, who, going out to ascertain the cause, perceived, about 200 yards from the Severn, a surprising shaking of the earth, and a little boiling up of water through the grass. Upon digging round the spring, the water sprung up to a great height, and a candle, which they held in their hand, set it on fire. This circumstance excited great curiosity; and many persons, from different parts of the country, came to visit the *burning well*. To prevent it from being destroyed, an iron cistern was placed upon it, with a small hole in the middle of the cover, through which the water might be viewed. When a lighted candle was put into this hole, the water immediately took fire, darting and flashing in a violent manner, much in the same way as spirits in a lamp, but with greater agitation. Its heat exceeded that of any other combustible matter. It would sometimes burn for 48 hours together, without any sensible diminution; and an ordinary tea-kettle, full of water, by being placed upon the hole, was made to boil in nine minutes. In 1747, it had been lost for many years; and the poor man in whose land it was, missing the profit which it brought him by shewing it to strangers, applied his utmost endeavours to recover it; and, after many fruitless attempts, he happened to hit upon it, about 30 yards nearer the river, by attending to a rumbling noise under ground, similar to that by which it was first discovered. It, however, completely disappeared in 1755, by the sinking of a coal-pit in the neighbourhood. Some have attempted to account for this phenomenon, by supposing the water to have been mixed with *petroleum*, one of the most inflammable substances in nature, and which has the property of burning in water; and others, that the vapour produced by the fermentation of coal and iron-ore, which abound in the vicinity, by ascending with violence through the chinks of the earth, gave the water its turbulent motion and inflammable quality.

Broseley is chiefly inhabited by colliers and miners, and carries on a considerable trade in coals with the different towns upon the Severn. Houses, 1022; population, 4832. See *Philosophical Trans.* for 1712, vol. xxviii. p. 475; and for 1747, vol. xliv. p. 370; also Pennant's *Tour*. (L)

BROSIMUM, a genus of plants of the class Diœcia, and order Monandria. See BOTANY, p. 347.

BROSSÆA, a genus of plants of the class Pentandria, and order Monogynia. See BOTANY, p. 140.

BROTERA, a genus of plants of the class Syngenesia, and order Polygamia Segregata. See BOTANY, p. 310.

BROUSSONETIA, a genus of plants of the class Diœcia, and order Tetrandria. See BOTANY, p. 335.

BROWALLIA, a genus of plants of the class Didynamia, and order Angiospermia. See Botany, p. 249.

BROWNE, SIMON, a dissenting minister in England, was born in Somersetshire about the year 1680. Endowed with superior powers of mind, which he had cultivated by early and assiduous study, he was found qualified for the ministry before he had attained the twentieth year of his age; and was elected minister of a numerous and respectable body of dissenters in Portsmouth, among whom he discharged the duties of his office with fidelity and diligence for several years. Having been called to the pastoral charge of a congregation of dissenters in London, he left Portsmouth in 1716, with the universal regret of his hearers. There he officiated for about seven years, with much credit to himself, and satisfaction to his people; till, in 1723, his mind sustained a severe shock by the death of his wife and an only son, and his grief at last settled in a deep and incurable melancholy. His mental disorder was of a very uncommon kind. In the beginning of it, he was completely miserable, and felt frequent and strong desires to deprive himself of life; but afterwards, his mind became more serene and composed, and, on some occasions, he would even assume a degree of cheerfulness and pleasantry; but he could never afterwards be prevailed upon to resume the duties of his pastoral office, nor even to join in any act of worship, either public or private. His own idea of his unhappy state is thus expressed in the *Adventurer*, No. lxxxviii. "He believed that the Almighty by a singular instance of divine power, had, in a gradual manner, annihilated in him the thinking substance, and utterly divested him of consciousness; that though he retained the human form, and the faculty of speaking in a manner that appeared to others rational, he had all the while no more notion of what he said than a parrot, and consequently no longer looked upon himself as a moral agent, or as a subject of reward or punishment." In that unhappy conviction he continued till the day of his death. Nothing gave him greater uneasiness than to find, that he could not persuade his friends that his state was really such as he believed it to be. This he accounted a charge against his veracity, which he endeavoured to repel by the strongest and most confident assertions. At other times, he viewed their incredulity as a part of that divine judgment by which he himself had been deprived of his mental existence; and believed that, by the all wise but unsearchable decree of heaven, he was placed beyond the reach of divine mercy. For that reason, he, for a long time, objected to any prayers being offered up by his friends in his behalf; but when his mind became more serene, he requested that they would pray for him, and was consoled by being recommended to the divine compassion.

But the most remarkable circumstance in his case, and which may be termed peculiar to it, was, that while he asserted that he had nothing more than a material existence, he gave undoubted proofs, both by his conversation and his writings, that his mental faculties existed in their full vigour. Having quitted the ministry, he retired to the place of his nativity in Somersetshire, where he translated several passages of the Greek and Latin poets into English verse; composed various small works for the use of children; and, with great labour, compiled a Dictionary of the Greek and Latin tongues, with a compendious list of the themes in both languages. None of these works, however, nor some others written at the same time, were ever published; but, during the last two years of his life, having devoted his time to religious study, he produced some excellent treatises in defence of Christianity: 1. "A Sober and Charitable Disquisition concerning the Importance of the Doctrine of the Trinity, particularly with regard to Worship, and the Doctrine of Satisfaction." 2. "A fit Rebuke to a ludicrous Infidel, in some Remarks on Woolston's Fifth Discourse on the Miracles of our Saviour, with a Preface, shewing the impropriety of prosecuting such Writers by the Civil Powers;"—a treatise, says Dr Leland, in his View of the Deistical Writers, written with great smartness and spirit. And, 3. "A Defence of the Religion of Nature, and of the Christian Religion, against the defective Account of the one, and the exceptions against the other, in a Book entitled Christianity as old as the Creation;"—which Leland styles "a good and solid answer to Tindal." These treatises were all published in 1732; and although, in composing them, it is said he availed himself but little of assistance from books, or from literary conversation, yet they discover a great extent of knowledge, and a mind in its full vigour. To the last of these works he had prefixed a dedication to Queen Caroline, which his friends, from a belief that it would injure the publication, very prudently suppressed, but which, on account of its singularity, is worthy of being preserved.*

During his retirement in the country, he could not be prevailed upon to enjoy the benefit of free air and exercise; and his sedentary life, joined to his intense application to study, brought on a complication of disorders, which put a period to his existence at the close of the same year, 1732, while he was in the 52d year of his age.

His writings prove him to have been a good scholar, and an able divine; and, while he showed himself superior to the opposers of Christianity in argument, he was also a zealous advocate for civil and religious liberty. In private life, he appears to have been a man whose heart was highly susceptible of warm and steady friendship, and whose mind was filled with an ardent zeal for the interests of pure and practical religion. See *Biogr. Dict.* and *Biogr. Brit.* (A. F.)

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* Dedication to Queen Caroline.—"Madam,—Of all the extraordinary things that have been tendered to your royal hands since your first happy arrival in Britain, it may be boldly said, what now bespeaks your majesty's acceptance is the chief. Not in itself indeed: it is a trifle unworthy your exalted rank, and what will hardly prove an entertaining amusement to one of your majesty's deep penetration, exact judgment, and fine taste. But on account of the author, who is the first being of the kind, and yet without a name.

"He was once a man, and of some little name; but of no worth, as his present unparalleled case makes but too manifest: for by the immediate hand of an avenging God, his very thinking substance has for more than seven years been continually wasting away, till it has wholly perished out of him, if it be not utterly come to nothing. None, no not the least remembrance, of its very ruins remains; not the shadow of an idea is left, nor any sense that so much as one single one, perfect or imperfect, whole or diminished, ever did appear to a mind within him, or was perceived by it.

"Such a present from such a thing, however worthless in itself, may not be wholly unacceptable to your majesty, the author being such as history cannot parallel: and if the fact, which is real and no fiction, nor wrong conceit, obtains credit, it must be recorded as the most memorable, and indeed astonishing event in the reign of George II. that a tract composed by such a thing, was presented to the illustrious Caroline; his royal consort needs not be added; fame, if I am not misinformed, will tell that with pleasure to all succeeding times.

"He has been informed that your majesty's piety is as genuine and eminent, as your excellent qualities are great and conspicuous. This can indeed be truly known to the great Searcher of Hearts only. He alone, who can look into them, can discern if they are sincere, and if the main intention corresponds with the appearance; and your majesty cannot take it amiss, if such an author hints, that his secret approbation is of infinitely greater value than the commendation of men, who may be easily mistaken, and are too apt to flatter their superiors.

"But if he has been told the truth, such a case as his will certainly strike your majesty with astonishment, and may raise that commiseration in your royal breast, which he has in vain endeavoured to excite in those of his friends; who, by the most unreasonable and ill-founded conceit in the world, have imagined, that a thinking being could for seven years together live a stranger to his own powers, exercises, operations, and state; and to what the great God has been doing in it, and to it.

"If your majesty, in your most retired address to the King of kings, should think of so singular a case, you may perhaps make it your devout request, that the reign of your beloved sovereign and consort may be renowned to all posterity by the recovery of a soul now in the utmost ruin; the restoration of one utterly lost at present amongst men.

"And should this case affect your royal breast, you will recommend it to the piety and prayers of all the truly devout, who have the honour of being known to your majesty; many such doubtless there are, though courts are not usually the places where the devout resort, or where devotion reigns. And it is not improbable, that multitudes of the pious throughout the land, may take a case to heart, that, under your majesty's patronage, comes thus recommended.

"Could such a favour as this restoration be obtained from Heaven by the prayers of your majesty, with what transports of gratitude would the recovered being throw himself at your majesty's feet: and, adoring the divine power and grace, profess himself, madam, your majesty's most obliged and dutiful servant, SIMON BROWNE."

GENERAL EXPLANATION

OF THE

PLATES BELONGING TO VOLUME FOURTH

OF THE

EDINBURGH ENCYCLOPÆDIA.

PLATE LXVI.

g. 1. A Seed: The common Bean, (*Vicia Faba*) *a*, the Scar, (*Hilum.*)

g. 2. One of the Cotyledons of the common Bean, separated from the other. *a*, The external membrane, (*tunica externa*); *b d*, the Corcle; *b*, the Plumule; *d*, the Rostel; *c*, the internal Membrane, (*tunica interna.*)

g. 3. A Pappus, (*Pappus*), sessile, with simple rays. Thistle, (*Carduus.*)

g. 4. Another kind of Sessile Pappus, with compound rays; (*Silphium marinum.*)

g. 5. A Pappus of a hook shape, of the Small Burdock, (*Xanthium strumarium.*)

g. 6. A Pappus composed of simple rays, with a footstalk: Dandelion, (*Leontodon Taraxacum.*)

g. 7. A Pappus, with compound rays, and a footstalk, in the Smooth Cat's Ear, (*Hypochæris glabra.*)

g. 8. The Hair Net, (*Capillitium*), displayed by a highly magnified representation of the *Cribraria vulgaris*.

g. 9. The Winged Seed of the *Thapsia villosa*; it is also ribbed.

g. 10. A sessile Pappus, with rays alternately long and short, (*Cnicus benedictus.*)

g. 11. A Pappus resembling fine hair, (*Andryala.*)

g. 12. The Seed of the Trifid Bur Marygold, (*Bidens tripartita,*) with numberless small points.

Fig. 13. The Seed of one of the Genus *Apocinum*, surmounted with silky fibres.

Fig. 14. A Seed of the Traveller's Joy, (*Clematis vitalba,*) terminated by a long fibre, which is thinly covered with small silky points.

Fig. 15. A Tail (*cauda*) of the Seed of the Traveller's Joy, (*Clematis vitalba.*)

Fig. 16. A Tuft (*coma*) attached to the pericarp.

Fig. 17. Another kind of Tuft.

Fig. 18. The Root, (*Radix*). AA, The Rhizoma, (*Rhizoma*), or woody portion of a biennial or perennial tree; BB, the Radicles, (*radiculæ*), and the absorbent vessels of the root; CC, the Fibrillæ, (*fibrillæ*).

Fig. 19. Bitten Root, (*radix præmorsa*), Devil's Bite, Scabiosa.

Fig. 20. A Bulb (*bulbus*) transversely cut.

Fig. 21. A tuberous Root, (*tuber.*)

Fig. 22. A solid Bulb; that of the hyacinth, (*Scilla nutans.*)

Fig. 23. Pendulous Root, (*radix pendula*), of the Common Dropwort, (*spiræa filipendula.*)

Fig. 24. Another example of a Bulb.

Fig. 25. Testiculated Root, (*testiculata*), as in the *Orchides*.

Fig. 26. Scaly Root, (*squamosa*), Bird's Nest Ophrys, (*Ophrys Nidus Avis*).

Fig. 27. Imbricated Root, (*imbricata*), common lily; *Lilium candidum*.

Fig. 28. Horizontal Root, (*horizontalis*), in most of the genus Iris.

Fig. 29. A spindle-shaped Root, (*fusiformis*), the common carrot, (*Daucus carota*).

Fig. 30. An articulated Root, (*articulata*), Common Solomon's Seal, *Convallaria multiflora.*

Fig. 31. Bending Root, (*flexuosa*), common Bistort, (*Polygonum Bistorta.*)

Fig. 32. A capillary Root, (*capillaris*), Common Flax, (*Linum usitatissimum.*)

Fig. 33. Fasciculated Root, (*fasciculata*), in the Aspergulæ.

Fig. 34. A palmated Root, (*palmata*), in a species of the Orchis.

Fig. 35. A branching Root, (*ramosa*), in the apple-tree, (*Pyrus malus,*) or pear-tree, (*Pyrus communis.*)

Fig. 36. A variety of a branching Root, as in the Shrubby Cinquefoil, (*Potentilla fruticosa.*)

Fig. 37. A knotty Root, (*nodosa*), *Rosea.*

Fig. 38. A creeping Root, (*repens*), common strawberry, (*Fragaria vesca*).

Fig. 39. }
Fig. 40. } Herbaceous Stems, properly so called.

Fig. 41. The herbaceous Stem of the Dandelion, *Leontodon Taraxacum.* The stem in this instance is also the flowerstalk. It is divested of leaves and branches, and terminates in a bunch of flowers.

PLATE LXVII.

Fig. 1. The Ear, (*spicula; locusta*), and the Straw, (*culmus*), of Barley, (*Hordeum*), with the sheath.

Fig. 2. The Stipe (*stipes*) of the common Mushroom, (*Agaricus campestris*), and its Cap, (*Pileus*), with an oblique section of the former.

Fig. 3. A radical Flowerstalk (*Pedunculus*) of the Cowslip, (*Primula veris*). This flowerstalk might be considered a scape.

Fig. 4. Another example of the Stipe, terminating in many leaves, the footstalks of which compose the Stipe itself. An oblique section of this Stipe is placed by it, to exhibit its internal structure.

Fig. 5. A simple, Terminal Flowerstalk, &c.

Fig. 6. Auxiliary Flowerstalks, (*Pedunculi axillares*); the Wild Cucumber, (*Cucumis*).

Fig. 7. Pedicles, (*Pedicelli*), or particular flower-stalks, springing from one common stalk, (*Ammi commune.*)

Fig. 8. Sessile Flowers, (*Flos sessilis*), without a flowerstalk.

Fig. 9. A Branch of the Horse Chesnut Tree, *Æsculus Hippocastanus*, exhibiting the different forms of its Buds, in their different stages.

Fig. 10. A Petiolated Leaf, (*Folium petiolatum*).

Fig. 11. The bursting Buds of the Pear-Tree, (*Pyrus malus*), with their accompanying stipules.

Fig. 12. The opening buds of the Common Lilac.

Fig. 13. Sessile Leaves, (*Folia sessilia*).

Fig. 14. The Bristle of the Common Hair Moss, (*Commune Polytrichum,*) with the male flower.

Fig. 15. The same Plant, with its *Theca*, covered by a hairy *Calyptra.*

Fig. 16. The *Bryum androgynum*, with its *Theca*, and long terminal *Setæ*; the *Operculum* and *Calyptra.*

Fig. 17. The Veined Leaf of the *Erythroxilon coca.*

Fig. 18. The *Scapus* of the Corn Horse Tail, (*Equisetum arvense.*)

Fig. 19. Pinnatifid Leaves, (*Folia pinnatifida*), *Echinops.*

Fig. 20. Pinnate Leaves, (*Folia pinnata*), Beech, (*Fagus sylvatica.*)

Fig. 21. Another variety of the Pinnate Leaf.

Fig. 22. Pinnate with tendrils, as in the common Pea, (*Vicia sativa*).

Fig. 23. Abruptly and equally Pinnate.

Fig. 24. Articulated Leaves, (*Folia articulata*). The different species of the genus *Cactus.*

Fig. 25. Bipinnate and Alternate Leaves, (*Bipinnata* and *Alterna*), Sensitive plant, (*Mimosa sensitiva*).

Fig. 26. The chief Footstalk bifurcating, common Black Hellebore, (*Helleborus niger*).

Fig. 27. Pinnated irregularly, Agrimony, (*Agrimonia.*)

Fig. 28. Ternate Leaves, (*Ternata*), Trefoil, (*Trefolium*).

Fig. 29. Conjugate Leaves, (*Conjugata.*)

Fig. 30. Simple Leaf (*Folium simplex*), being supported by an appropriate foot-stalk.

Fig. 31. Simple Leaf, (*Simplex.*)

Fig. 32. Another example of a Simple Leaf.

Fig. 33. A Skeleton Leaf, exhibiting the internal structure of the Leaf when divested of the green pulpy parts. *Poplar*, (*Populus.*)

Fig. 34. A Simple Leaf deprived of its Cuticle, by which the internal structure is apparent to the naked eye.

Fig. 35. An example of a Developing Bud, similar to those, Fig. 11. and 12. of this Plate.

Fig. 36. Pinnate Leaves, with Axillary Flowers.—Common Bugle, (*Echium vulgare.*)

PLATE LXVIII.

Fig. 1. A Thyrse (*Thyrsus*), or Flower-stalk, which springs from the stem, and forms an axis, around which other flower-stalks arrange themselves in different situations, and at different heights, as in Lilac, (*Jasminum.*)

Fig. 2. Whirl (*Verticillus*), in which the Foot stalks, the Flowers, or the Fruit, have a circular arrangement.

Fig. 3. Panicle, (*Panicula.*) The arrangement of the Flower-stalks nearly resembles that of the Thyrse, differing, however, in having longer and more irregular ramifications: this is sufficiently shewn in this Figure.

Fig. 4. The Frond (*Frons*) of the Palm Tree, and those plants resembling Palms, particularly the Banana, (*Musa.*)

Fig. 5. Grape like Stem, as in the Common Currant, (*Ribes rubrum.*)

Fig. 6. Tendril, (*Cirrhus,*) which springs from the Bark, as in the *Bignonia.*

Fig. 7. An Axillary Tendril, (*Cirrhus Axillaris,*) the Common Vine.

Fig. 8. Simple Thorns, and others that are bifurcated.

Fig. 9. Thorns adhering to the true Wood, after the bark has been separated by means of boiling, in the Sloe, (*Prunus spinosa.*)

Fig. 10. Another example of a Tendril opposed to a Foot-stalk.

Fig. 11. A Spine, easily separable from the Wood; but pretty firmly attached to the Bark.

Fig. 12. An Axillary Tendril. In the Grenadilla, (*Passiflora.*)

Fig. 13. Scattered Leaves, (*Folia Sparsa.*) In the Lily, (*Lilium*)

Fig. 14. Conjoint Leaves, (*Conjuncta.*) Common Honeysuckle, (*Lonicera periclymenum.*)

Fig. 15 Embracing and Perfoliate Leaves, (*Perfoliata.*) In the Genus *Bupleurum.*

Fig. 16. Leaves that partially surround the Stem.

Fig. 17. A Leaf that forms a sheathe for the Stem.

Fig. 18. Fasciculated or Bundled Leaves. *Melissa.*

Fig. 19. Decurrent Leaves (*Decurrentia*) in the different species of the Thistle. *Carduus.*

Fig. 20. Leaves in a Whirl, (*Verticillata.*)

Fig. 21. Stipules (*Stipulæ*), scattered and opposite.

Fig. 22. An Imbricated Leaf, (*Imbricatum.*)

Fig. 23. A Linear Lanceolate Leaf, (*Lineare et Lanceolatum.*)

Fig. 24. An Oval Pointed Leaf, (*Ovale.*)

Fig. 25. An Elliptical Leaf, (*Ellipticum.*)

Fig. 26. An Oboval Leaf, (*Obovale.*)

Fig. 27. An Obcordate Leaf, (*Obcordatum.*)

Fig. 28. A Reniform Leaf, (*Reniforme.*)

Fig. 29. A Saggitiform Leaf, sinuated at its base, (*Saggitiforme.*)

Fig. 30. A Triangular Leaf, (*Triangulare.*)

Fig. 31. Another, but not sinuated, Saggitiform Leaf, (*Saggitiforme.*)

Fig. 32. A portion of the Sensitive Plant, (*Mimosa Pudica.*)

Fig. 33. A Cruciform Leaf, (*Cruciforme.*)

Fig. 34. A Panduriform Leaf, (*Panduriforme.*)

Fig. 35. A Denticulated Cordate Leaf, (*Denticulatum Cordatum.*)

Fig. 36. An Oval Leaf, cleft at its apex.

Fig. 37. A Pointed Oval Leaf, similar to Fig. 24.

Fig. 38. A Rounded Oval Leaf, doubly serrated.

Fig. 39. An Elliptical Crenelated Leaf.

Fig. 40. An Adze-shaped Leaf, oval and pointed.

Fig. 41. A Notched Leaf, (*Sinuatum.*)

Fig. 42. A three-cleft Leaf, sinuated, (*Trifidum.*)

Fig. 43. A Lanceolate Leaf, somewhat serrated, (*Lanceolatum Serratum.*)

Fig. 44. A Rhomboidal Leaf, (*Rhomboidale.*)

Fig. 45. A Cylindrical Leaf, (*Cylindricum.*)

Fig. 46. A Hastate Leaf, (*Hastatum.*)

PLATE LXIX.

Fig. 1. A Lyrate Leaf, (*Lyratum.*)

Fig. 2. A Three-lobed Leaf, (*Trilobatum.*)

Fig. 3. A Four-lobed Leaf, (*Quadrilobatum.*)

Fig. 4. A Compound Leaf, (*Compositum.*) Black Hellebore, (*Helleborus niger.*)

Fig. 5. A Five-lobed or Palmated Leaf, (*5-lobatum.*)

Fig. 6. A Palmated Leaf, sinuated at the apices of the Leaves, (*Palmatum.*)

Fig. 7. A Runcinate Leaf, (*Runcinatum.*)

Fig. 8. A folded Leaf, composed of seven Lobes, deeply sinuated and serrated, (*Plicatum, &c.*)

Fig. 9. A Hastate Leaf. Same with Fig. 46.

Fig. 10. A Pinnatifid Leaf, (*Pinnatifidum.*)

Fig. 11. An Oblong Leaf, with two sharp appendages.

Fig. 12. Tergeminate Leaf, (*Tergeminatum.*) *Sensitiva tergemina.*

Fig. 13. Biternate Leaves, (*Biternatum*), Barren wort, (*Epimedium.*)

Fig. 14. Triternate Leaves, (*Triternatum*), *Paullinia triterna.*

Fig. 15. A sinuated Rhomboidal Leaf, (*Rhomboidale sinuatum.*)

Fig. 16. Tripinnate Leaves, (*Tripinnata*), *Aralia spinosa.*

Fig. 17. Leaves irregularly disposed.

Fig. 18. A Monopetalous Corolla, (*Corolla monopetala.*)

Fig. 19. The Calyx of the Flower of the Apricot.

Fig. 20. The Fruit of the Woodbind, (*Convolvulus,*) after the pistil has been obliterated, in consequence of its functions having ceased.

Fig. 21. A Nut (*Glans*), the exterior covering of which is hard, and within an oily farina is contained.

Fig. 22. A common proper Calyx.

Fig. 23. Another example of the same.

Fig. 24. The chief organs of the fructification of the Woodbind, viz. the Pistil and Stamens, with all their parts.

Fig. 25. The Capsule transversely cut, to exhibit the structure of the three Cells, each containing a Seed.

Fig. 26. Another example of a common Calyx, with a tubiform Monopetalous Corolla.

Fig. 27. A complete Flower, composed of a Monopetalous Corolla, a Calyx, and the Stamens and Pistils.

Fig. 28. A Polypetalous Corolla, common Pink, (*Dianthus.*)

Fig. 29. A branch of the Enchanter's Night Shade, (*Circæa lutetiana*), bearing Dipetalous Flowers. A single Flower is immediately below, in which the characters are more distinctly marked.

Fig. 30. An irregular Calyx, such as most commonly occurs in Labiate Flowers.

Fig. 31. The *Theca* of Mosses: in one of the Figures it is in its proper situation, in the other it is partially separated.

Fig. 32. The Catkin (*Amentum*), so called from a supposed resemblance to the tail of a cat.—This is the common Hazle, (*Corylus avellana.*)

Fig. 33. An imbricated Calyx in the Thistle or Artichoke, (*Carduus.*)

Fig. 34. The Sheath (*Spatha*) which envelopes the Narcissus, and bursts in consequence of the efforts of the Flower to unfold.

Fig. 35. The Sheath enveloping the Cuckoo's Pint, (*Arum maculatum.*)

Fig. 36. A Calyx adhering to the Germen or Seed Vessel. In the natural order, *Cucurbitaceæ*.

Fig. 37. A double Calyx in the Mallow tribe.

Fig. 38. A Polypetalous Flower, the Rose, (*Rosa.*)

Fig. 39. The Glumes of Common Oats, (*Avena sativa.*)

Fig. 40. A Compound Flosculous Flower.

Fig. 41. A Tripetalous Flower, *Rosa Tradescantia.*

Fig. 42. A Petal belonging to Fig. 49, with a Monopetalous Corolla, though commonly considered Polypetalous.

Fig. 43. A Tetrapetalous Corolla.

Fig. 44. The Wrapper (*Volva*) of the *Clathrus.*

Fig. 45. A Radiated Flower.

Fig. 46. An example of six Stamens surrounding one Pistil in the Lily.

Fig. 47. A Petal, with the Hectary at its base.—The Crown Imperial, (*Fritillaria.*)

Fig. 48. A Semiflosculous Flower.

Fig. 49. A Branch of Common Mallow, bearing Monopetalous Corollas, which may be taken for Polypetalous.

Fig. 50. A complete Flower, displaying the parts of the Stamens and of the Pistil.

PLATE LXX.

Fig. 1. A View of the arrangement of the parts of fructification.

Fig. 2. A Stamen, with a rounded Anther, emarginated and excavated at the Apex.

Fig. 3. A Cordate Anther.

Fig. 4. A Globular Anther, as in the Stamens of the Lime Tree, (*Tilia Europæa.*)

Fig. 5. An Anther, intimately connected with the thread of the Stamen in the Tulip Tree.

Fig. 6. An Anther, with Globular Cells, united at their basis to the extremity of the thread.—In the Silver Weed, (*Potentilla anserina.*)

Fig. 7. A Reniform Anther.

Fig. 8. A Round Anther, marked with Furrows.

Fig. 9. A Linear Anther in Magnolia.

Fig. 10. A Bifid Anther. In most of the Gramina.

Fig. 11. A Pendant Anther.

Fig. 12. A Cornuted Anther.

Fig. 13. A Saggitiform Anther.

Fig. 14. A Sessile Anther in Common Birthwort, (*Aristolochia clematitis.*)

Fig. 15. A Cordate Anther, attached by its inferior surface to the thread, which is much dilated at its base.

Fig. 16. A Prismatic Anther, having four Furrows.

Fig. 17. An Anther, having two *Cornua* at its apex, and bifid at its base.

Fig. 18. An Oblong Furrowed Anther. It is represented in this Plate at the moment at which it discharges its Pollen.

Fig. 19. An irregularly formed Anther, not very common. It occurs in the Genus *Bryonia*, and some others.

Fig. 20. An Anther, cleft both at the apex and base.

Fig. 21. An Anther, having a lateral attachment to the Stamen.

Fig. 22. Each of the Stamens in this Figure bearing at its extremity another transverse thread, terminated at both ends by an Anther of one Cell.†

Fig. 23. Represents the Stigma and Seed Vessel of the Wood Melic Grass, (*Melica uniflora.*)

Fig. 24. The Stigma and Seed Vessel of the Pistil of a species of Palm.

Fig. 25. Those of the *Convallaria.*

Fig. 26. Those of the *Narcissus.*

Fig. 27. Of the *Stratiotes.*

Fig. 28. Of the *Thesium.*

Fig. 29. Those of the *Atraphaxis.*

Fig. 30. Those of the *Corispermum.*

Fig. 31. Those of the *Lythrum.*

Fig. 32. Those of the *Statice.*

Fig. 33. Those of the *Dodecathion.*

Fig. 34. Those of the *Lathræa.*

Fig. 35. Those of the *Justicia.*

Fig. 36. Those of the *Jasminum.*

Fig. 37. Those of the Olive.

Fig. 38. Those of the *Melitis.*

Fig. 39. Those of the *Dodortia.*

Fig. 40. Those of the *Cerinthium.*

Fig. 41. Those of the *Convolvulus.*

Fig. 42. Those of the *Nymphæa.*

Fig. 43. Those of the *Asclepias.*

Fig. 44. Those of the *Clathra.*

Fig. 45. Those of the *Aralia.*

Fig. 46. Those of the *Menispermium.*

Fig. 47. Those of Barberry, (*Berberis vulgaris.*)

Fig. 48. Those of the *Argemone.*

Fig. 49. Those of any Flosculous Flower.

Fig. 50. Those of the *Hypericum androsemum.*

Fig. 51. Those of the *Citrum Aurantium.*

Fig. 52. Those of the *Canella.*

Fig. 53. Those of the *Cucubalis.*

Fig. 54. Those of the Pink, (*Dianthus.*)

Fig. 55. Those of the Poppy, (*Papaver.*)

Fig. 56. Those of Leguminous Flowers.

Fig. 57. Those of the *Iris.*

Fig. 58. Those of the Common Vine, (*Vitis vinifera.*)

Fig. 59. Those of the *Geranium.*

Fig. 60. Those of the Malvaceous Plants.

Fig. 61. Several Small Nuts; each is monolocular, and contains Farina, which is also delineated.

Fig. 62. Another kind of Nut.

Fig. 63. An Ear of Wheat.

Fig. 64. An Ear of Indian Corn.

Fig. 65. The Situation of the Seeds of the *Lavendula Spica*, resting on the *Placenta.*

Fig. 66. A Pericarp of Flax, and containing several cavities or cells, in which the seeds rest.

Fig. 67. A Pericarp, equally formed and arranged around a common axis.

Fig. 68. A Bilocular Capsule, containing the seeds

of Dog's Mercury, (*Mercurialis perennes.*)

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† Besides these stamens that have been delineated, there are many others which our limits do not permit us to discuss; but the examination would be interesting, as it might establish a generic character, hitherto little attended to by botanists. Girardin mentions some others, which it may be worth while to examine.

Fig. 69. The Capsule of the Castor Oil Nut, *Ricinusus Communis*, with the three Cells, exhibited by a transverse section.

Fig. 70. The Capsule of the *Tetragastris ossea.*

Fig. 71. The Capsule of the *Hermannia alnifolia.*

Fig. 72. The Capsule of the *Calla Æthiopica;* the cells, and a single seed, being delineated.

Fig. 73. The Closed Follicles of the *Asclepias niger.*

Fig. 74. A Pod of the Pea, shewing the alternate arrangement of the seeds.

Fig. 75. An Open Pod of the *Astragalus*, which is bilocular.

Fig. 76. Another Pod, in the cells of which the arrangement of the seeds is also displayed.

Fig. 77. An Articulated Pod of the *Hedysarum.*

Fig. 78. The Winged Pericarp of the *Silene noctiflora;* in one figure, the wings closely embrace the front, and in the other they are partially detached.

Fig. 79. A Pod to which the Seeds are attached by the Umbilical Cord, without any Cells.

Fig. 80. A section of an Apple, exhibiting the fleshy substance surrounding the cells that contain the seeds.

Fig. 81. A Drupe of the Walnut, in all its states. 1. Enveloped with its exterior coat. 2. Cut into two parts, and stripped of the bark. 3. The cartilaginous substance contained in the centre of the drupe.

Fig. 82. Two Drupes of the Cherry tree.

Fig. 83. A Section of a Peach, (also a Drupe). The various parts of the fruit here delineated.

Fig. 84. The Woody Drupe of the *Cocos nucifera.*

Fig. 85. An Olive (Drupe), with all its parts.

Fig. 86. A Berry of the Grape.

Fig. 87. A Berry of a Rough Gooseberry.

Fig. 88. A Cone of the Pine, with seeds separated.

Fig. 89. The Pericarp of the Horse Chesnut.

Fig. 90. The Pericarp of the Pink, (*Dianthus,*) which has no cells.

Fig. 91. The Pericarp of the Violet, (*Viola adorata.*)

Fig. 92. The Pericarp of the Woodbind, (*Convolvulus.*)

Fig. 93. Another Species of Pericarp.

Fig. 94. The Cells opposite to the Valves. In the Tulip.

Fig. 95. The Pericarp of the *Elaterium momordica* bursting and throwing its contents out by its elasticity, to the distance of a yard.

Fig. 96. The Pericarp of the Geranium, upon the base of which the fruit rests; in the second figure, the individual seeds are seen attached by a kind of footstalk, in its proper place.

Fig. 97. The Cells Transverse in the *Polygala.*

Fig. 98. A Pericarp that Bursts in the Middle.

Fig. 99. A Pericarp that Bursts at its Apex.

Fig. 100. An example of Seminiferous Cells.

Fig. 101. The Placenta in the Poppy.

Fig. 102. The Pericarp of the *Silene noctiflora,* which bursts at its Apex, and exhibits the appearance of five teeth.

[illegible] lly; F, the end view of the Tube; G, [illegible] blocks when united, and forming [illegible]

Fig. [illegible] of one of the Frames for sup- [illegible]

[illegible] Bridge, 20 feet from the [illegible] in Perspective.

Fig. 1. The [illegible] the [illegible] dicates the [illegible] Ruptured [illegible]

Fig. 2. Cellular Substance, [illegible] taining very few pores. [illegible] verse section, the Hexagonal [illegible] tical section of the same. [illegible] sides of the cells are common [illegible] are adjacent.

Fig. 3. The Cellular Substance, with elongated hexagons, and more porous membranes.

Fig. 4. A Lengthened Hexagon, pierced by pores in regular order.

Fig. 5. Another example of Cellular Substance, containing fissures as well as pores.

Fig. 6. An example of Simple Tubes. (See Part II. Sect. 2.)

Fig. 7. Simple Tubes very Porous.

Fig. 8. Large Tubes.

Fig. 9. Large Tubes, with Pores.

Fig. 10. False Tracheæ, with Transverse Clefts.

Fig. 11. True Spiral Air-vessels of different sizes.

Fig. 12. Large Tubes, containing both Fissures and Pores.

Fig. 13. Large Tubes, with a Cleft, a Porous, and a Plain Surface.

Fig. 14. Large Tubes, with some of the spiral turns untwisted.

Fig. 15. A Cylindrical and interrupted Rent. *a*, A Transverse Section.

Fig. 16. An Hexahedral Rent, intersected by Membranes. *a*, Indicates a Transverse Section.

Fig. 17. The whole of the above parts united.

Fig. 18. The Cuticle Imperforate.

Fig. 19. The Cuticle containing Elongated Pores.

Fig. 20. Cuticle conjoined with Tubular Structure.

Fig. 21. Cuticle formed by a portion of the Cellular Substance.

Fig. 22. Cuticle with large and small Pores.

Fig. 23. Cuticle with apparently obstructed Pores.

Fig. 24. A Velvety Cuticle, the elevated points of which are merely an external elongation of surface of the cellular membranes, or, as Mirbel expresses it, a kind of protrusion formed by that substance.

Fig. 25. Another example of Cuticle taken from the *Urtica Arborea.*

N. B. In this Table, the phraseology of Mirbel is retained, as best fitted to describe his own views. For the particular details of these, see VEGETABLE PHYSIOLOGY, Part II. Sect. 2. in which they are fully stated.

PLATE LXXII.

Fig. 1. *Blitum Capitatum*, illustrative of the class

Monandria. It also is an example of an apetalous flower.

Fig. 2. A beautiful specimen of the *Trientalis Europæus*, illustrative of the class Heptandria.

Fig. 3. The Flowering Rush, *Butomus umbellatus*, illustrative of class Enneandria. The leaves and germen are separately engraved.

Fig. 4. Pendulous Lily, *Lilium Penduliflorum*, illustrating the class Hexandria.

Fig. 5. *Erica conspicua*, illustrative of class Octandria.

Fig. 6. *Campanula trachelium*, illustrative of class Pentandria.

PLATE LXXIII.

Fig. 1. A beautiful specimen of the *Dianthus arboreus*, illustrating Decandria.

Fig. 2. The *Rosa gallica versicolor*, illustrating Icosandria.

Fig. 3. The *Galeopsis galeobdolon*, illustrating Didynamia, No. 1.

Fig. 4. The *Antirrhinum majus*, Yellow toad-flax, illustrating Didynamia, No. 2.

Fig. 5. *Argemone Mexicana*, illustrating Polyandria.

Fig. 6. *Thlaspi arvense*, or Penny Cress, illustrating Tetradynamia.

PLATE LXXIV.

Fig. 1. *Hesperis maritima*, illustrating Tetradynamia.

Fig. 2. *Betula lenta*, illustrating Monœcia.

Fig. 3. *Scorzonera aspera*, illustrating Syngenesia.

Fig. 4. *Hypericum*, St John's Wort, illustrating Polyadelphia.

Fig. 5. Two plants of the *Valisneria spiralis*. That with the short flower-stalks is the male, the other the female. These illustrate Diœcia.

Fig. 6. *Arum maculatum*, or Cuckoo's pint, illustrating Gynandria. Although this plant has been referred in the arrangement to the Class Monœcia, yet we have selected it as sufficiently characteristic of this Class, in which it was originally placed by Linnæus himself.

PLATE LXXV.

Fig. 1. Filices.
Fig. 2. Musci.
Fig. 3. Hepaticæ.
Fig. 4. Algæ.
Fig. 5. Fungi.

Figures illustrative of the orders of the class Cryptogamia.

PLATE LXXVI.

Fig. 1. Contains a Section of Mr Bramah's Press for Printing the Numbers and Dates of Bank Notes.

Fig. 2. Is a Perspective View of the same Machine.

PLATE LXXVII.

Represents the Interior of a complete Brewery. The dimensions of the vessels are taken from the newly erected Brewery of Messrs Brown, Parry and Company, in Golden Lane, London, but they are arranged in a different manner.

Fig. 1. Is the Plan of the Brewery.

Fig. 2. and 3. Are different Elevations of the Establishment.

PLATE LXXVIII.

Fig. 1. Represents a Plan of the Mash Tun, as constructed by Mr Cooper.

Fig. 2. Is an Elevation of the Mash Tun, part of which is represented in Section, to shew the Machine within it.

Fig. 3, 4, 5. Represent the Vertical Axis and Wheel Work, for giving motion to the Mashing Engine.

Fig. 6. Represents a Stop Valve, which is a simple and effectual substitute for a Cock in many situations of a Brewery.

Fig. 7. Is an Apparatus in Mr Goodwynne's Brewery, for Washing Casks.

Fig. 8. Represents the Vent Peg invented by Mr Bramah, for admitting the proper quantity of Air into a Cask, to allow the Liquor to run off.

Fig. 9. Shews a part of the Apparatus of the Mashing Engine.

PLATE LXXIX.

Fig. 1, 2, 3, 4. Are different Sections to explain the Structure of a Close Copper, which contains three hundred Barrels.

Fig. 5, 6. Contain a Plan and Section of the Lid of the Copper.

Fig. 7. Represents a Simple Sluice Cock, which is generally used in Breweries.

Fig. 8, 9. Are Stop Cocks, as constructed by Mr Thomas Rowntree, for the Suction Pipes of Pumps.

Fig. 10, 11, 12. Are very ingenious Stop Cocks, invented by Mr Bramah.

Fig. 13. Is a Tasting Cock, invented by Mr Bramah, for the purpose of tasting the Beer at various periods, in the Great Store Vat.

PLATE LXXX.

Fig. 1. Shews the probable steps by which the Arch was invented.

Fig. 2—10. Are Diagrams for illustrating the theory of Arches.

PLATE LXXXI.

Fig. 1—10. Are Diagrams for illustrating the theory of Arches, Piers, Abutments, and Sterlings.

PLATE LXXXII.

Contains Engravings of the four most celebrated Bridges at Rome.

PLATE LXXXIII.

Contains a Plan and Elevation of London Bridge;—

an Elevation of one half of the Pont de la Guillotiere, over the river Rosne at Lyons;—and an Elevation of one half of the Pont du St Esprit, over the river Rosne at Languedoc.

PLATE LXXXIV.

Contains Plans and Elevations of one half of Orleans Bridge, and one half of Neuilly Bridge.

PLATE LXXXV.

Contains an Elevation of the Bridge of Maxence in France,—a Plan of the Superstructure and Foundation, and a Transverse Section.

PLATE LXXXVI.

Contains a Plan and Elevation of one half of Westminster Bridge, and a Plan and Elevation of one half of Blackfriars Bridge.

PLATE LXXXVII.

Contains Plans, Elevations, and Sections of Tongueland Bridge over the River Dee, in Scotland.

PLATE LXXXVIII.

Contains a View of the Wooden Bridge built over the Don, in Aberdeenshire, by Mr Burn; and also several Designs for Wooden Bridges, by Palladio.

PLATE LXXXIX.

Contains an Elevation of the famous Wooden Bridge built over the Rhine at Schaffhausen in Switzerland, with Views of some of its parts separately.

PLATE XC.

Contains a Plan of the Roof of the Bridge at Schaffhausen; a Section of the whole Bridge; and a Plan of the Floor.

PLATE XCI.

Contains a View and Sections of the First Iron Bridge, built over the River Severn at Coalbrookdale; and also a View and Sections of the Iron Bridge built over the River Wear at Sunderland.

PLATE XCII.

Contains an Elevation, &c. of the Iron Bridge built over the Severn at Buildwas.

PLATE XCIII.

Fig. 1. Shews the component parts of the Arch in the Iron Bridge at Sunderland, over the River Wear. A, is a side view of a Block; B, an end view; C, one of the wrought Iron Bars, by which the Blocks are united; D, one of the Screw Bolts; E, a length view of one of the Tubes, which unites the Ribs horizontally; F, the end view of the Tube; G, four of the blocks when united, and forming part of two Ribs.

Fig. 2. Is an Elevation of one of the Frames for supporting the Centre.

Fig. 3. Is a Section of the Bridge, 20 feet from the Northern Abutment, in Perspective.

PLATE XCIV.

Contains Elevations of the Iron Bridges at Boston in Lincolnshire, and at Bristol; and an Elevation of Bonar Bridge in Scotland.

PLATE XCV.

Contains a Representation of the Cofferdam employed in laying the foundations of Neuilly Bridge.

PLATE XCVI.

Fig. 1, 2, 3. Contains a view of the Cofferdam used in building the Bridge over the Severn at Bewdley.

Fig. 4, 5, Represent the Plan and Section of a Cofferdam used in under-building one of the Piers, and also the Eastern Abutment of Pulteney Bridge at Bath.

PLATE XCVII.

Fig. 1. Shews a simple method, used in Britain, of constructing Cofferdams, by driving one row of Guaging Piles, and filling the spaces between them with Pile Planks driven vertically.

Fig. 2. Shews a very simple Caisson, as constructed by Mr Smeaton.

Fig. 3. Is the View of a Cofferdam employed for founding the Sea-Lock at the West Entrance of the Caledonian Canal.

PLATE XCVIII.

Represents the Caisson employed by Mr Labelye in laying the foundations of Westminster Bridge.

PLATE XCIX.

Represents the Centres of Blackfriars, Westminster, Neuilly, and Orleans Bridges.

PLATE C.

Represents the Centres of Conon, Tongueland, and Ballater Bridges; and also a new method of forming Centres for Large Arches, invented by Mr Telford.

PLATE CI.

Contains Sections of different parts of Westminster, Blackfriars, Orleans, and Dunkeld Bridges.

PLATE CII.

Contains an Elevation, &c. of the Foot Bridge over the river Clyde at Glasgow, designed by Mr Peter Nicholson.

PLATE CIII.

Represents the beautiful Bridge built at Alcantara in Spain, by the Emperor Trajan.

PLATE CIV.

Fig. 1. & 2. The Horizontal Plan of a Loom for Weaving Brocade. See p. 754.

Fig. 3. Shews the method of Common Spotting.

Fig. 4. Shews the method used for the Japan or Paper Spot.

Fig. 5. Represents a Brocade Lay.

Fig. 6. Represents the Brocade Segments.

END OF VOLUME FOURTH.

EDINBURGH:
Printed by A. Balfour.

BOTANY.

PLATE LX

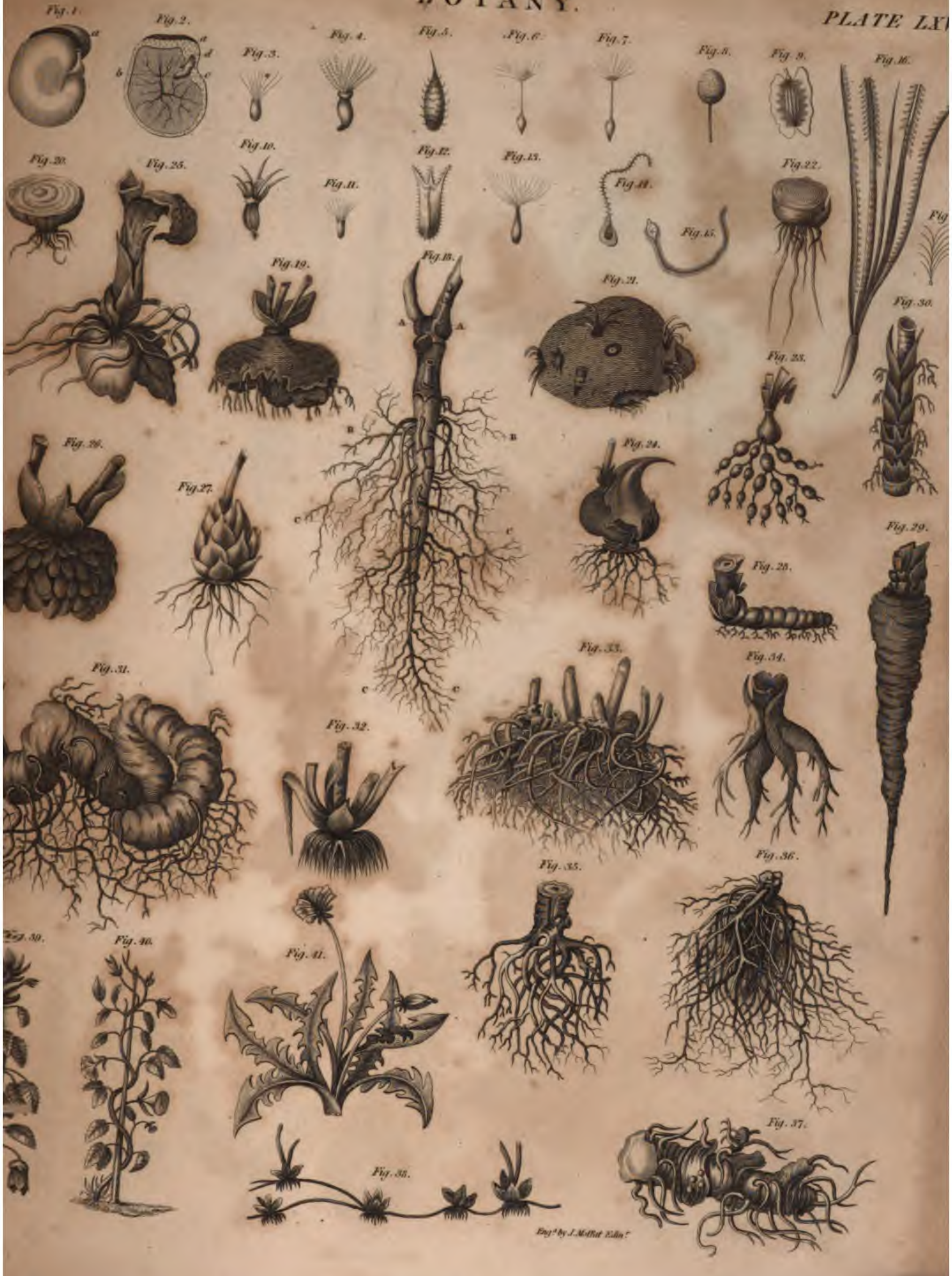
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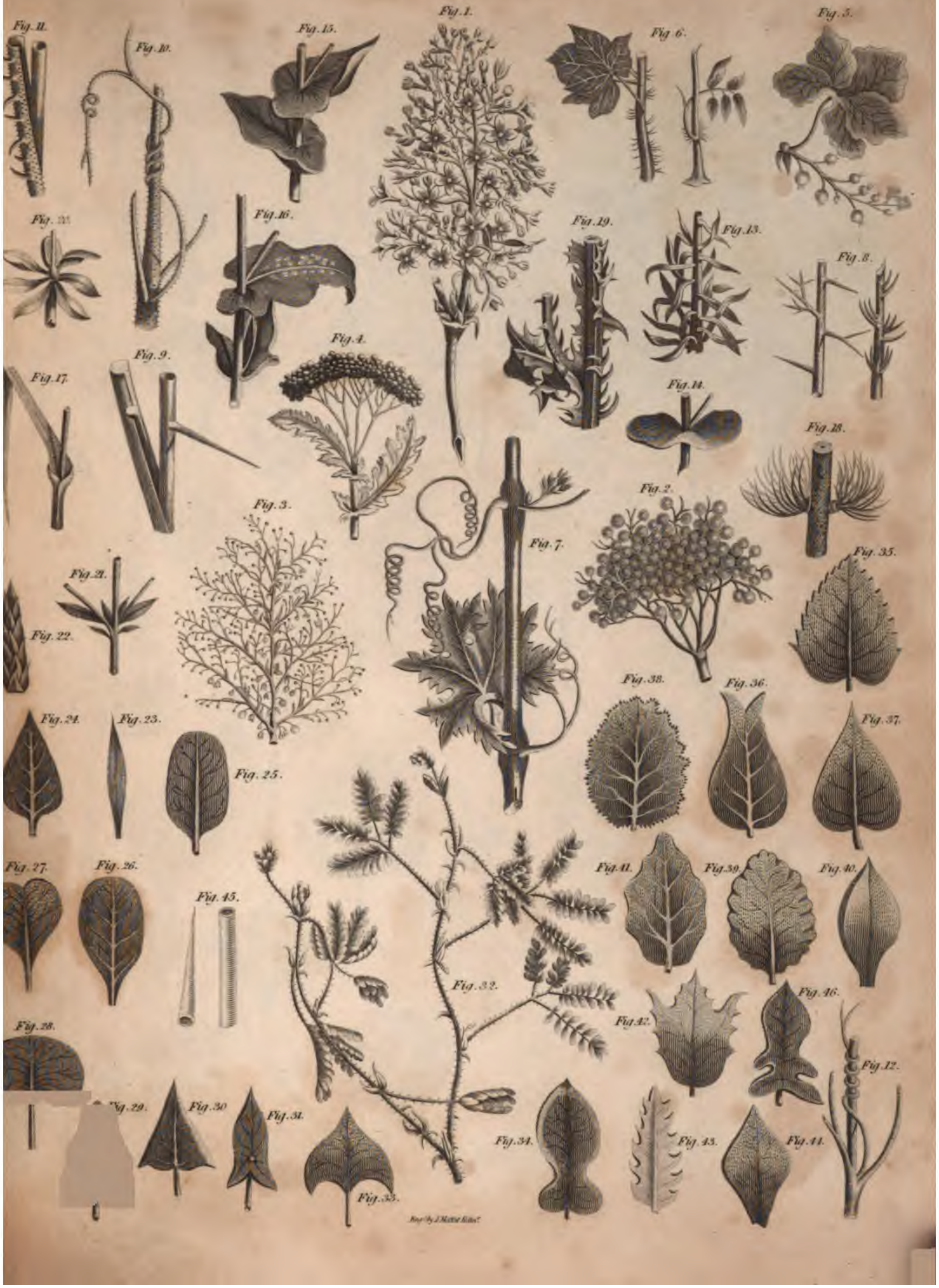
PLATE LXVIII.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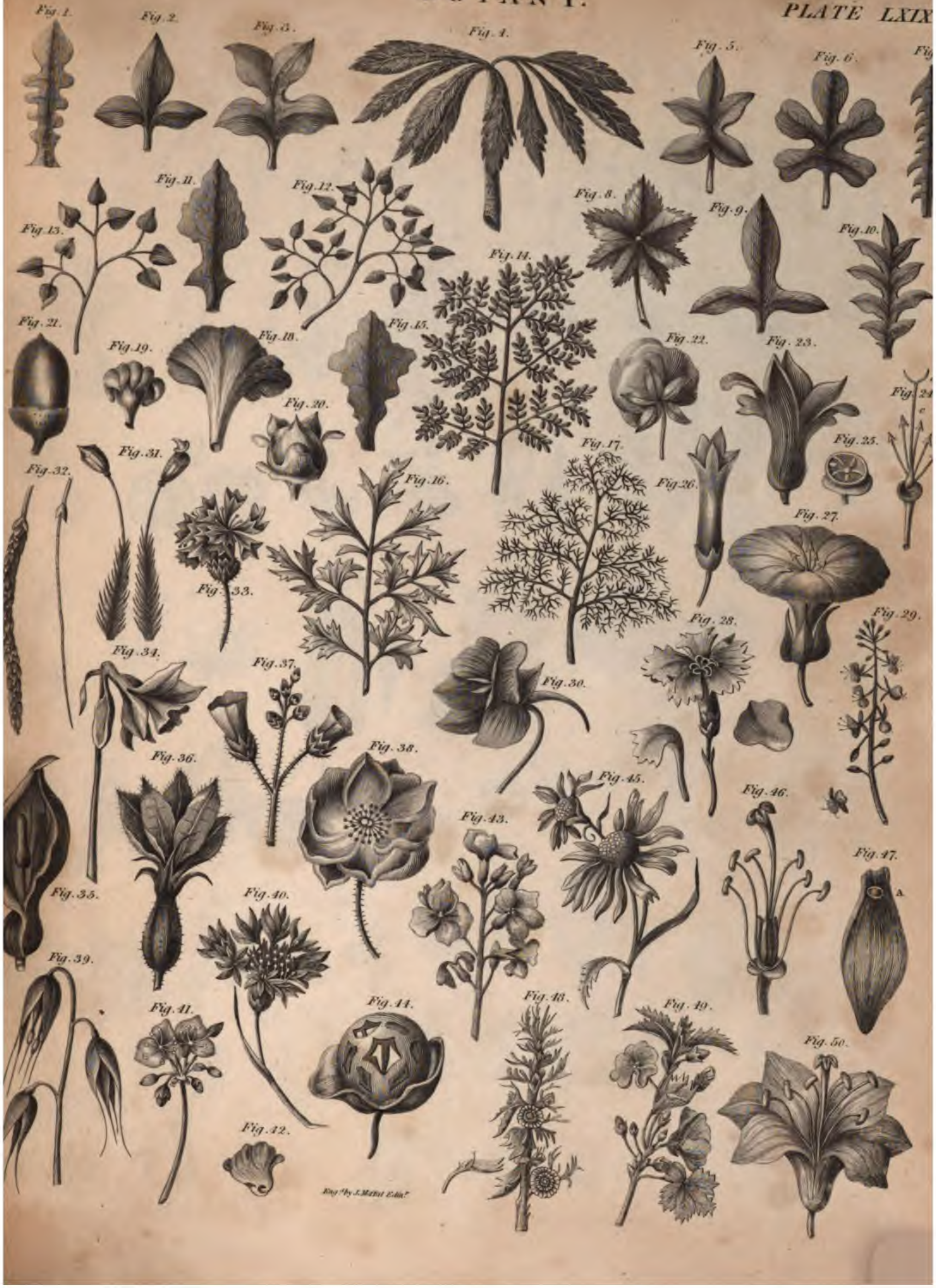
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PLATE LXX.

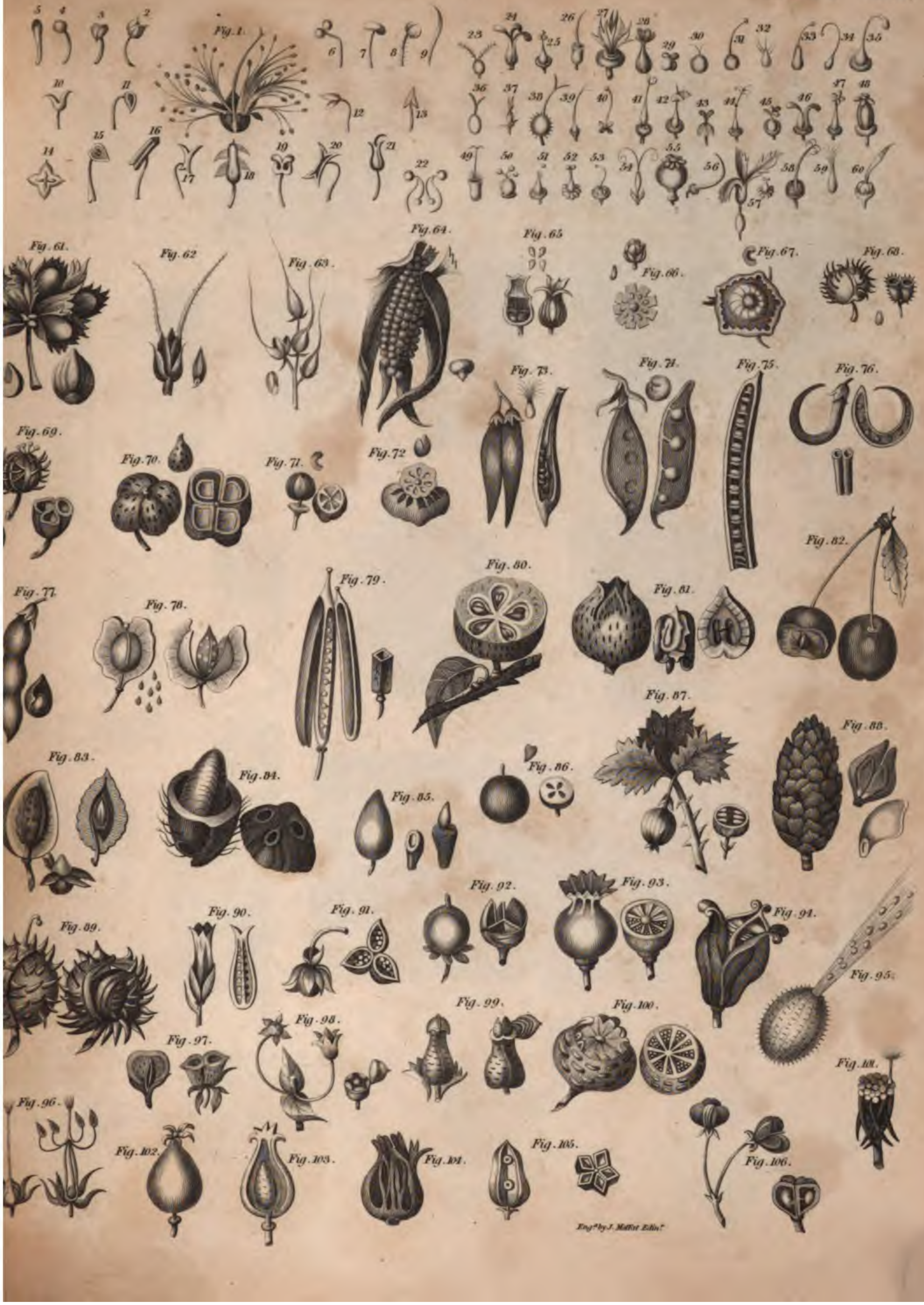

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PLATE LXXI.

Fig. 1.

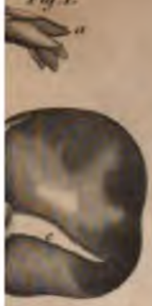
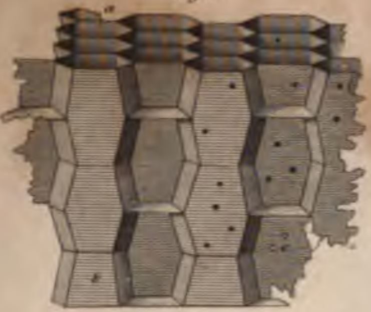


Fig. 2.



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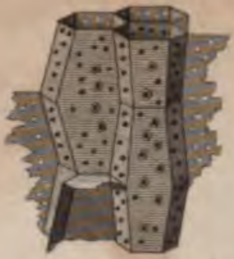

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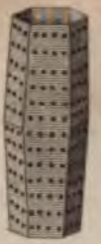

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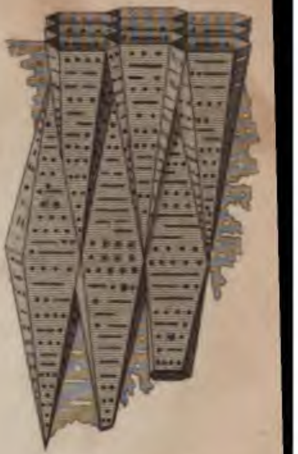

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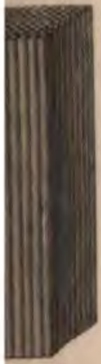

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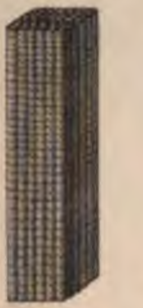

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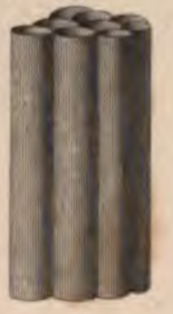

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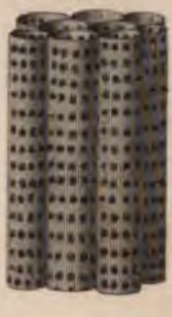

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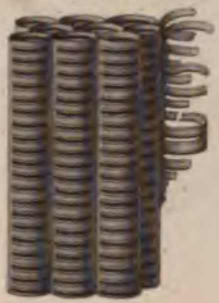

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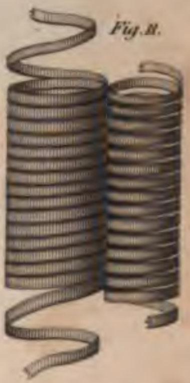

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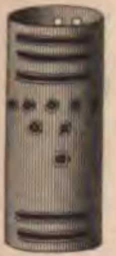

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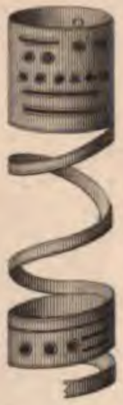

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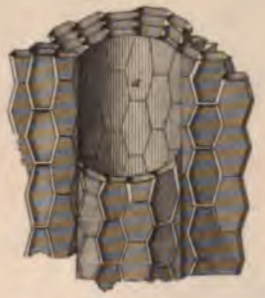

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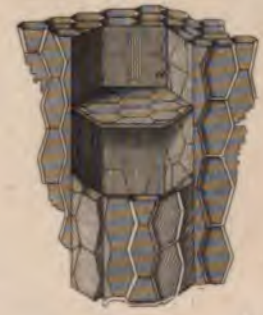

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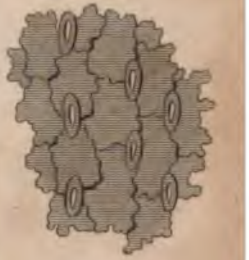

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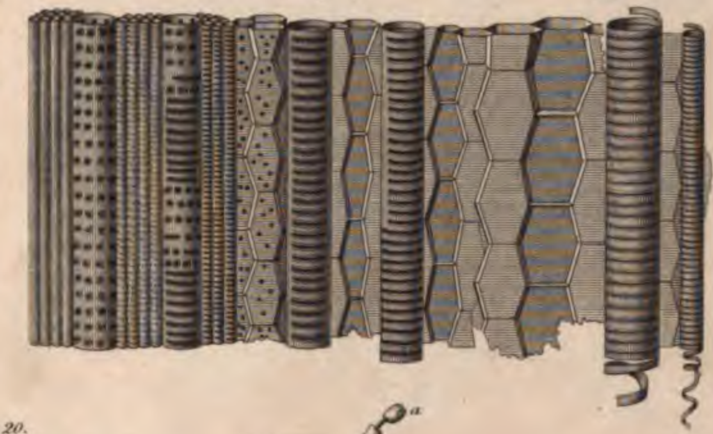

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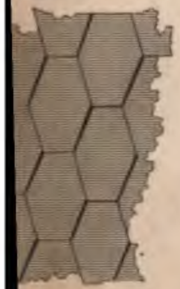

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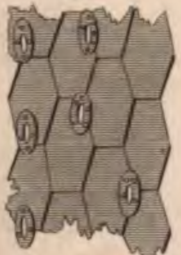

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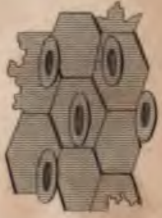
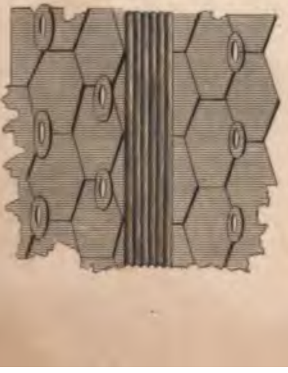


ig. 19.

Fig. 20.



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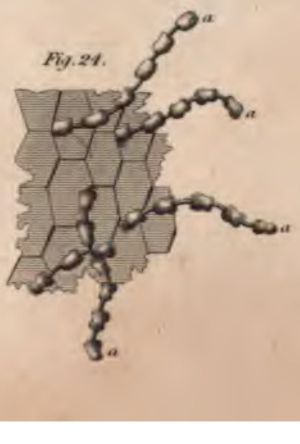

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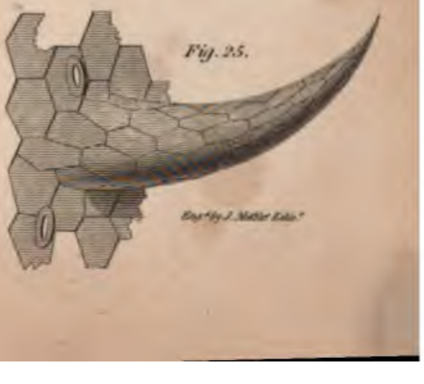

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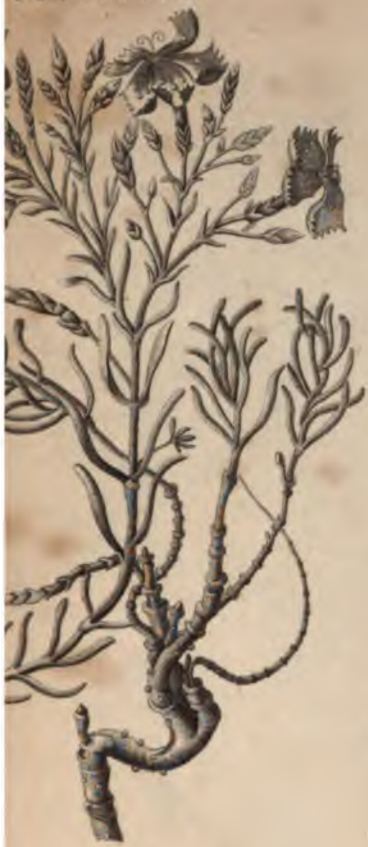

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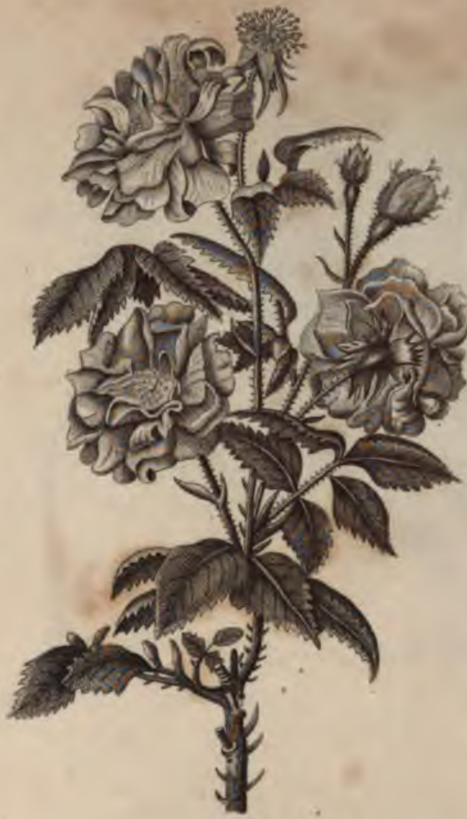

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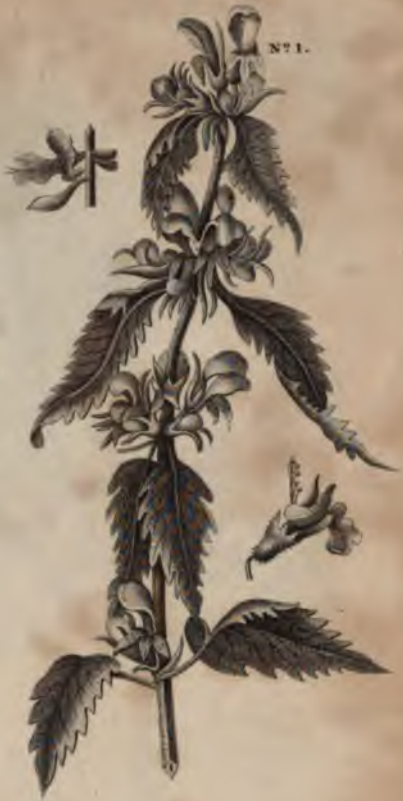

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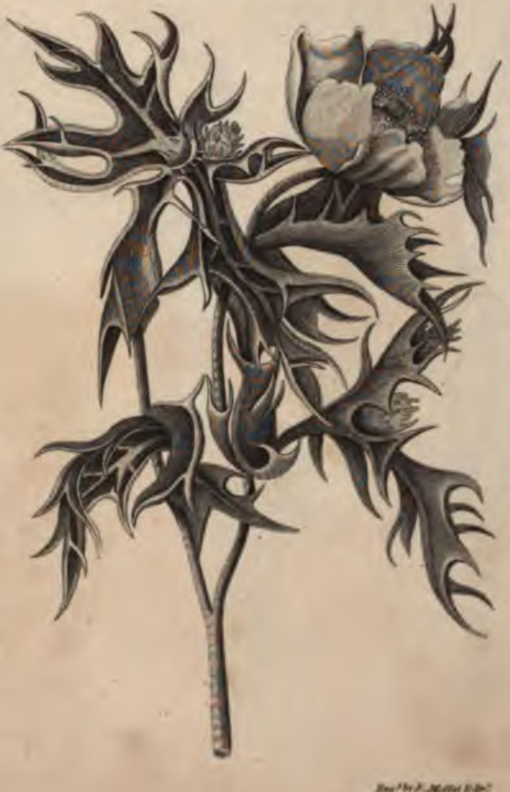

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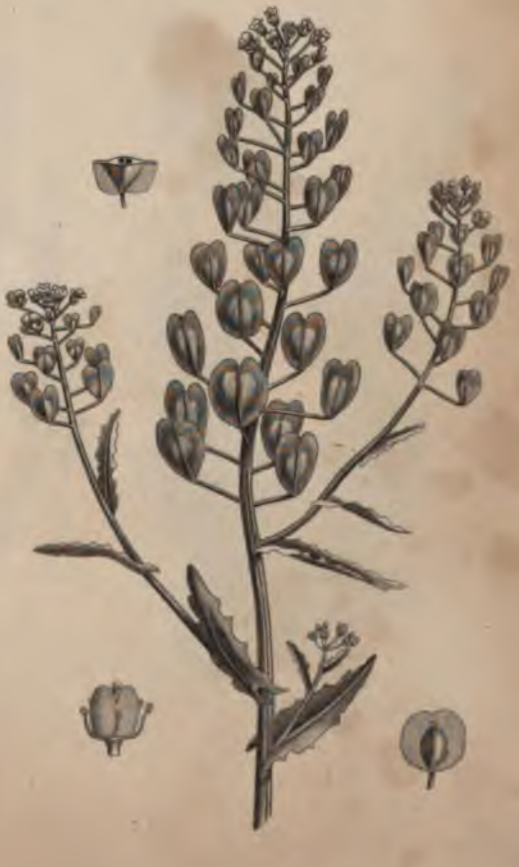

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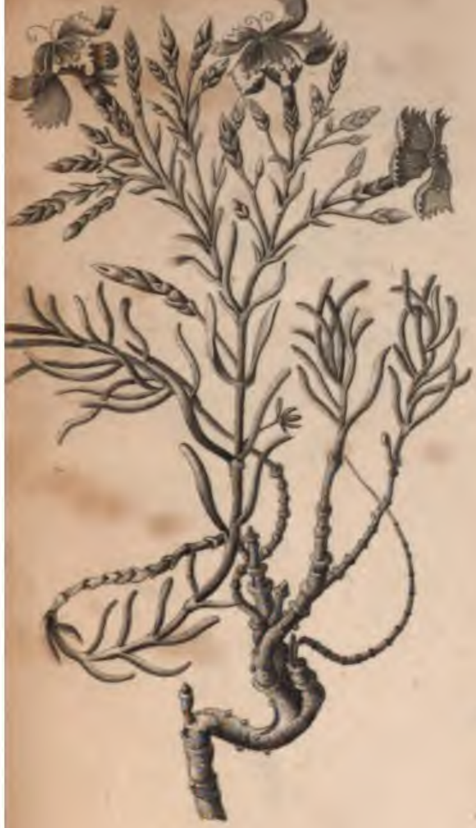
BOTANY.

PLATE LXXIII.

DECANDRIA.



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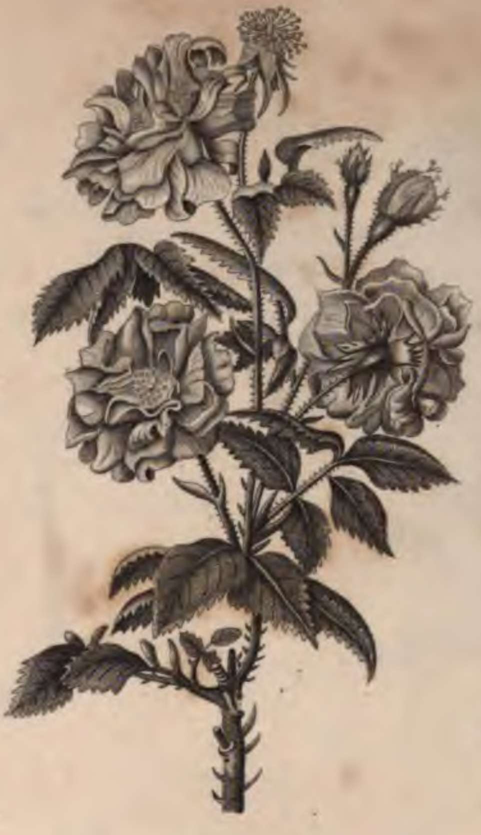

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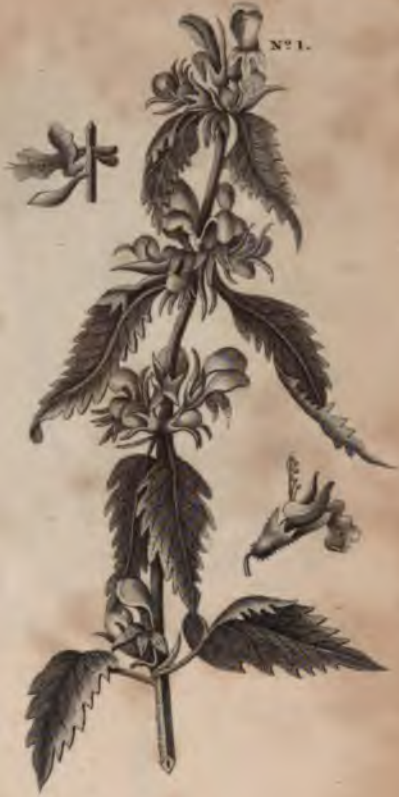
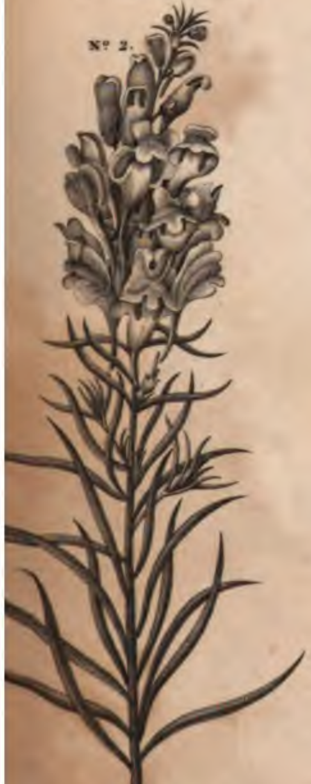


No 1.

DIDYNAMIA.

No 2.



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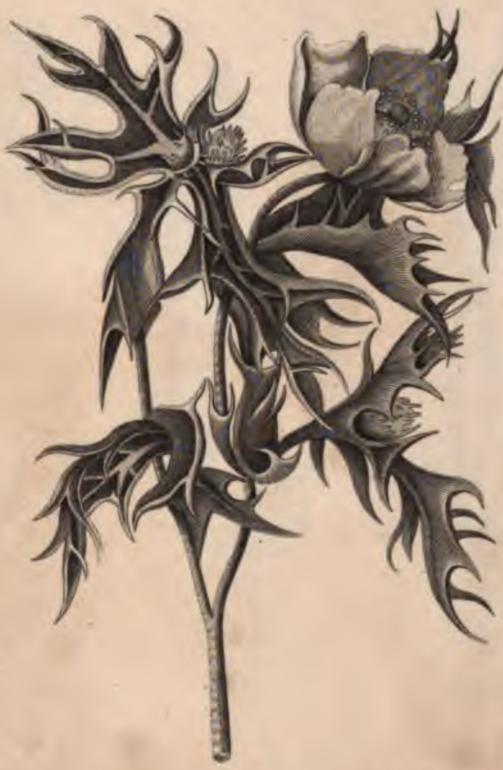

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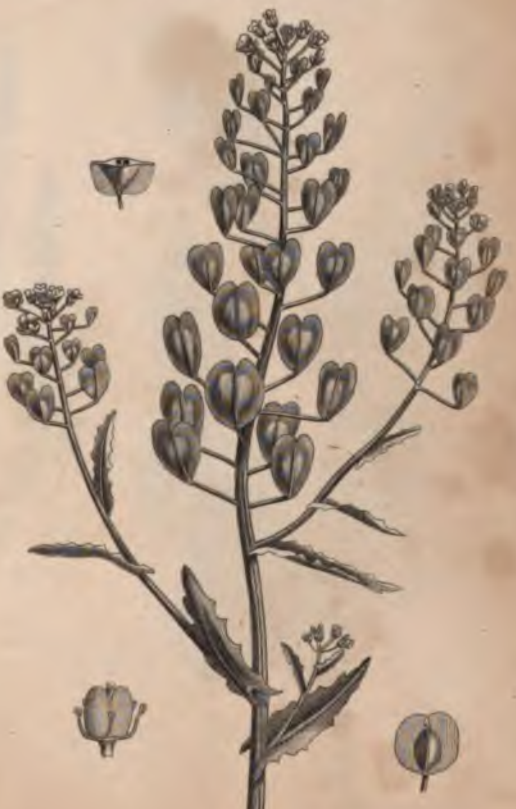

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BOTANY. *PLATE LXXIV.*

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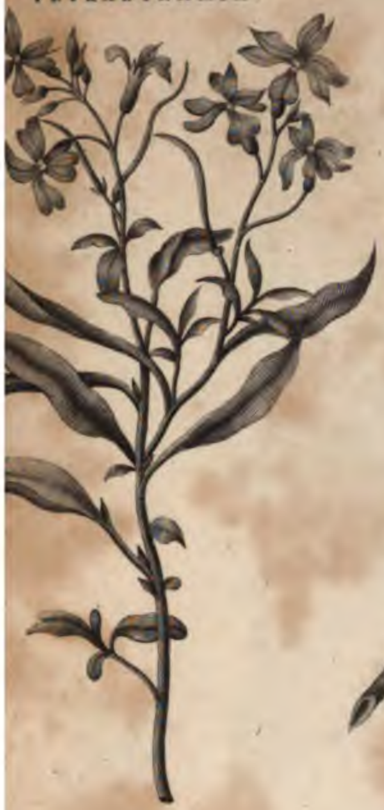

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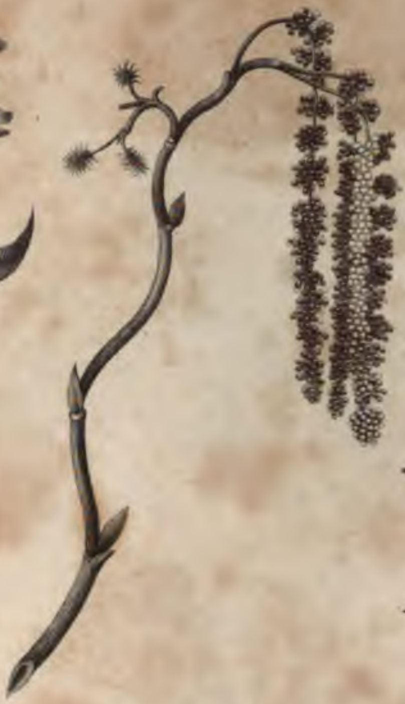

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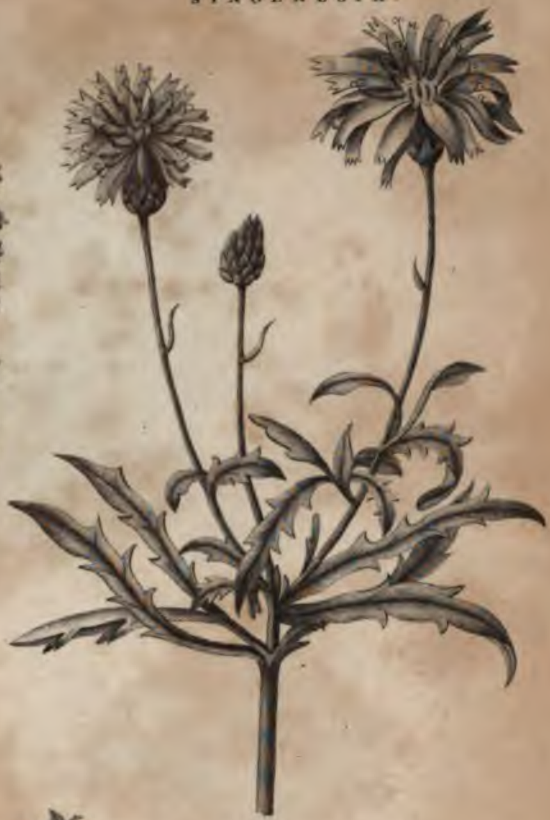

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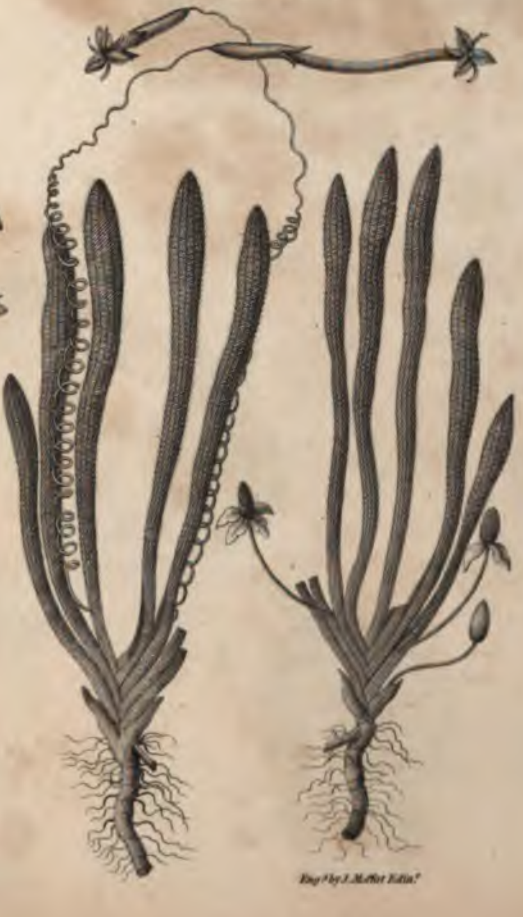

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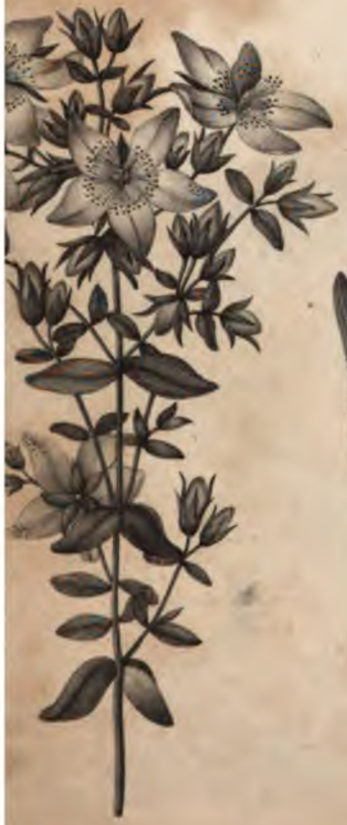

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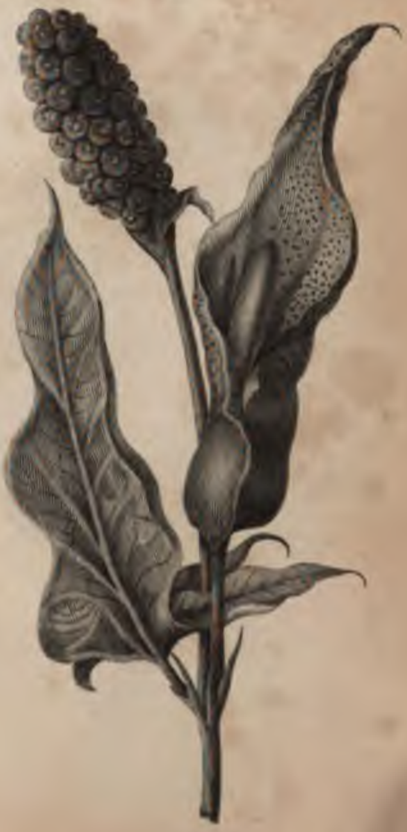

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PLATE LXXV.

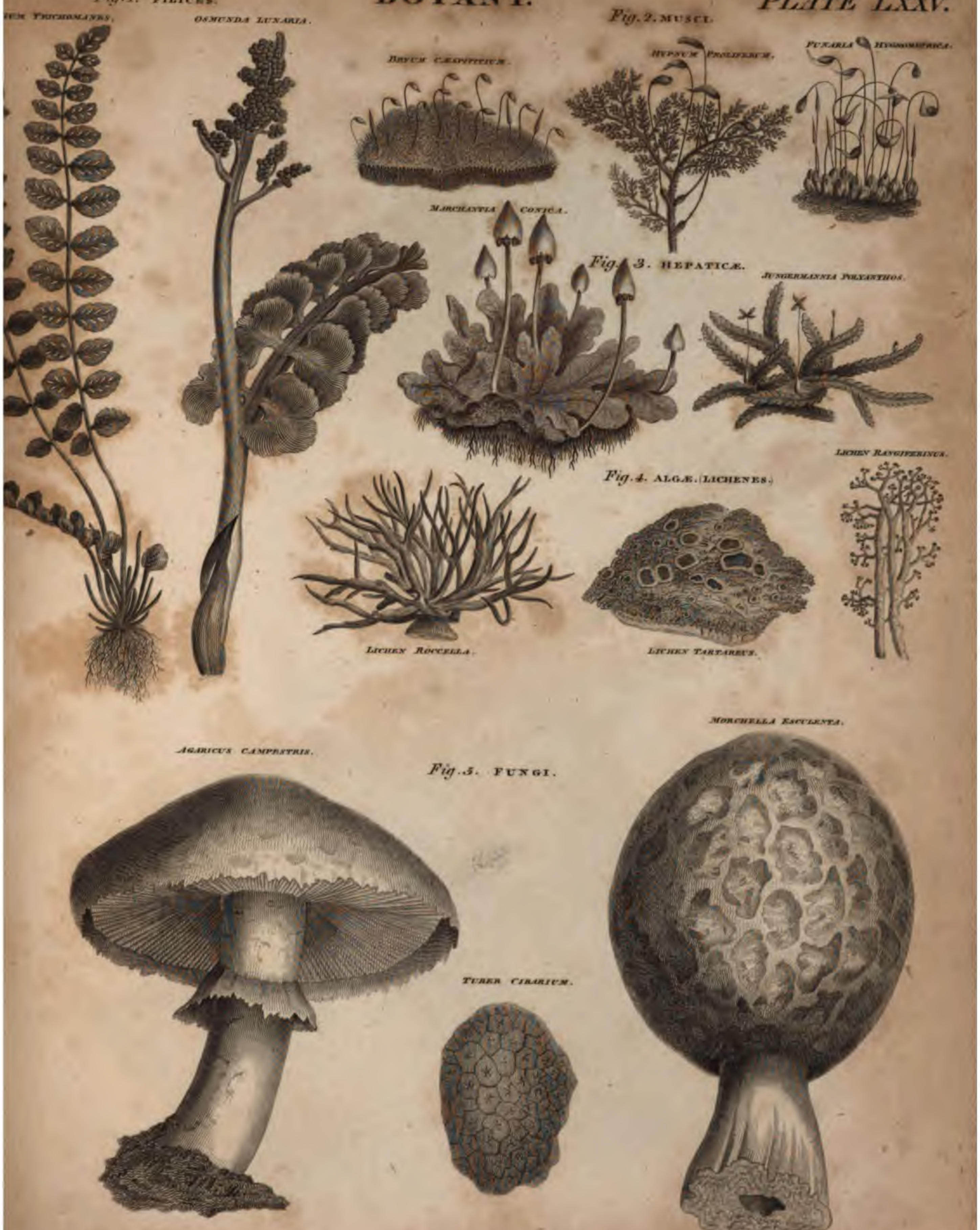
Fig. 1. FILICES.
UM TRICHOMANES,
OSMUNDA LUNARIA.
Fig. 2. MUSCI.
BRYUM CÆSPITITIUM.
HYPNUM PROLIFERUM.
FUNARIA HYGROMETRICA.
MARCHANTIA CONICA.
Fig. 3. HEPATICÆ.
JUNGERMANNIA POLYANTHOS.
LICHEN RANGIFERINUS.
Fig. 4. ALGÆ. (LICHENES.)
LICHEN ROCCELLA.
LICHEN TARTAREUS.
MORCHELLA ESCULENTA.
AGARICUS CAMPESTRIS.
Fig. 5. FUNGI.
TUBER CIBARIUM.

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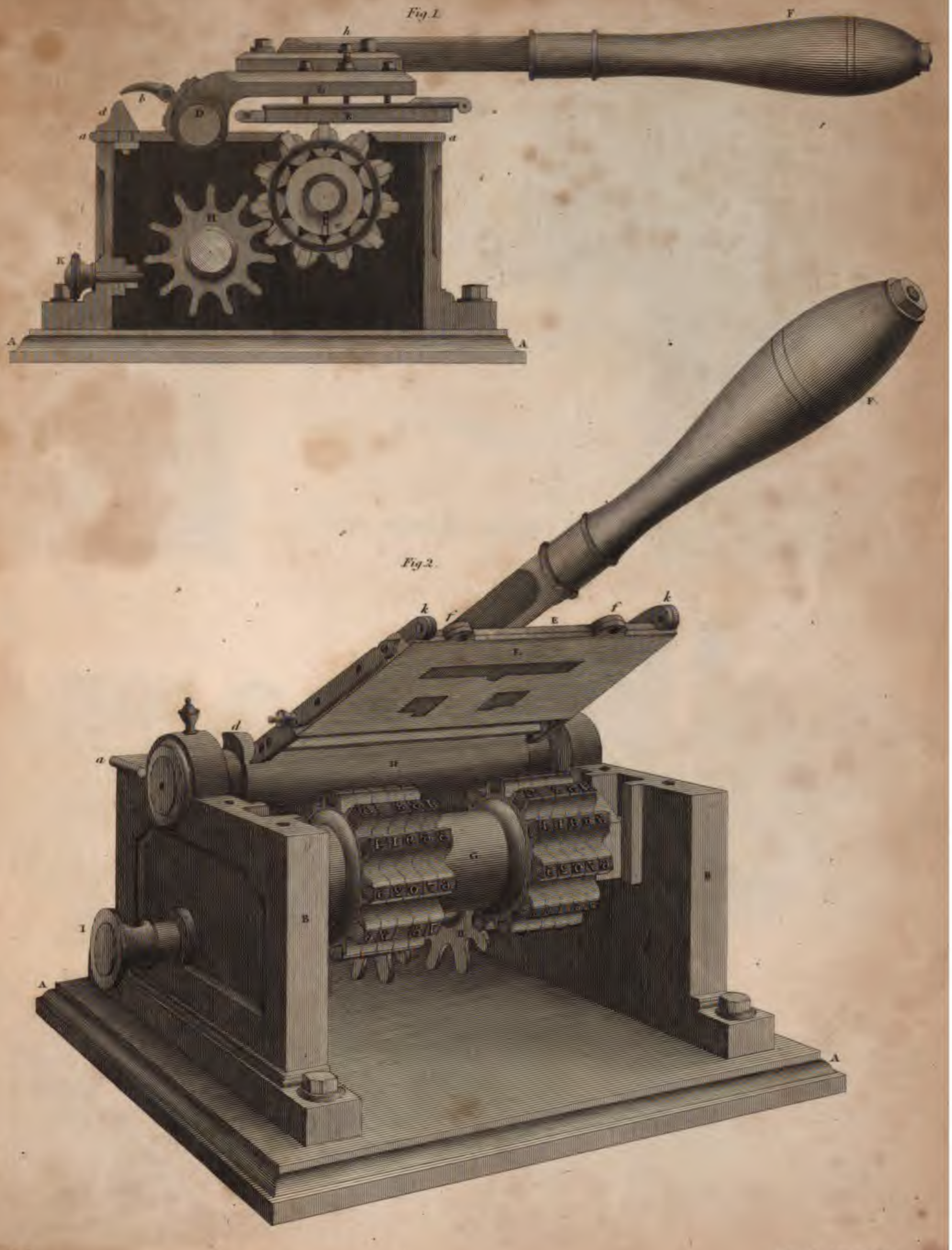
BRAMAH'S
BANK NOTE PRESS.

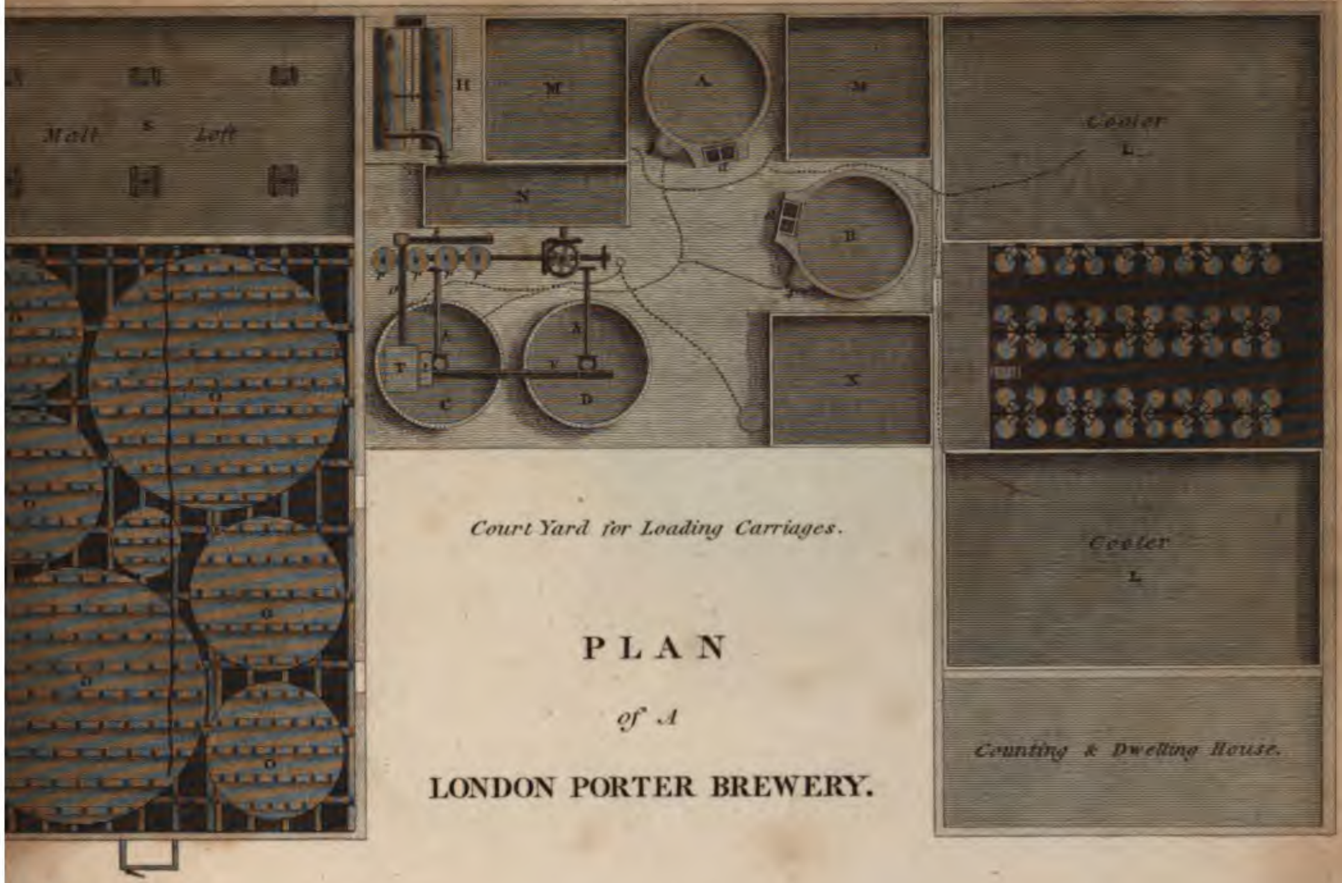
PLATE LXXVI.



ohn Farey Jun^r

Eng^d by J. Moffat Edin^r

Fig. 1.

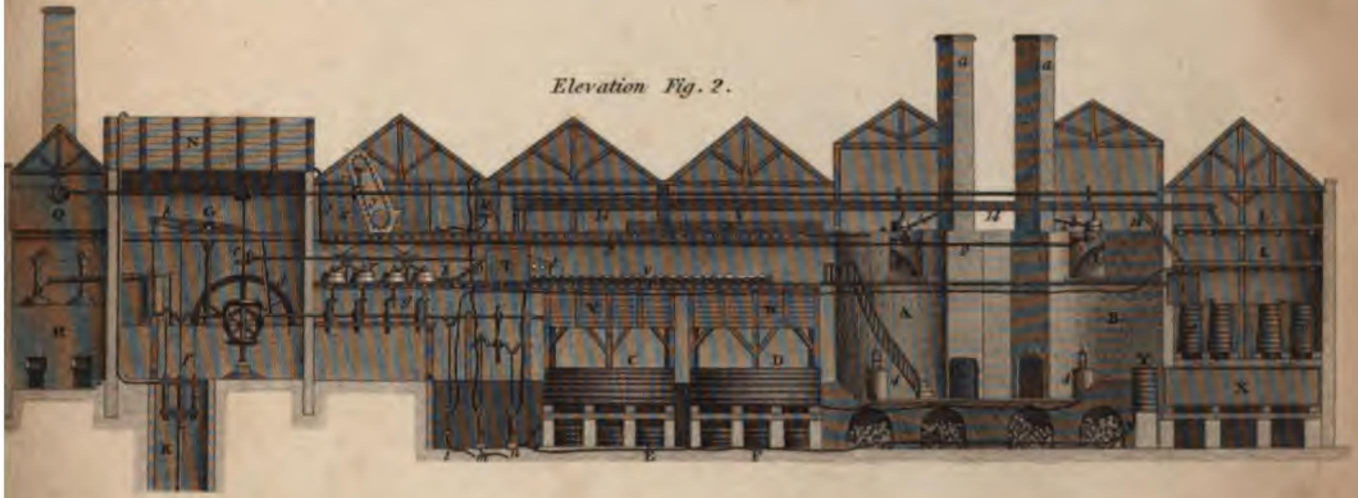


PLAN

of A

LONDON PORTER BREWERY.

Elevation Fig. 2.



Elevation Fig. 3.

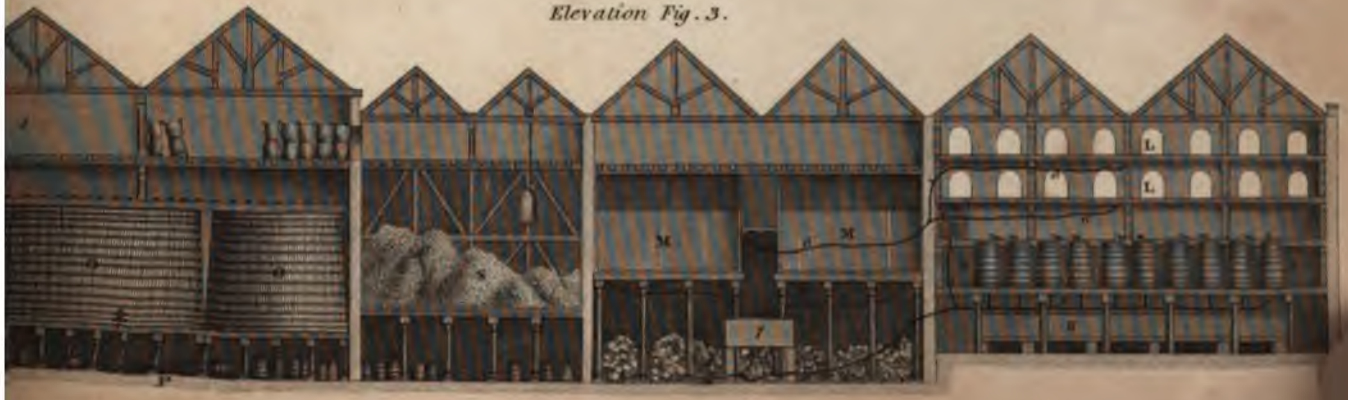


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Fig. 7.

Fig. 1. *Plan*

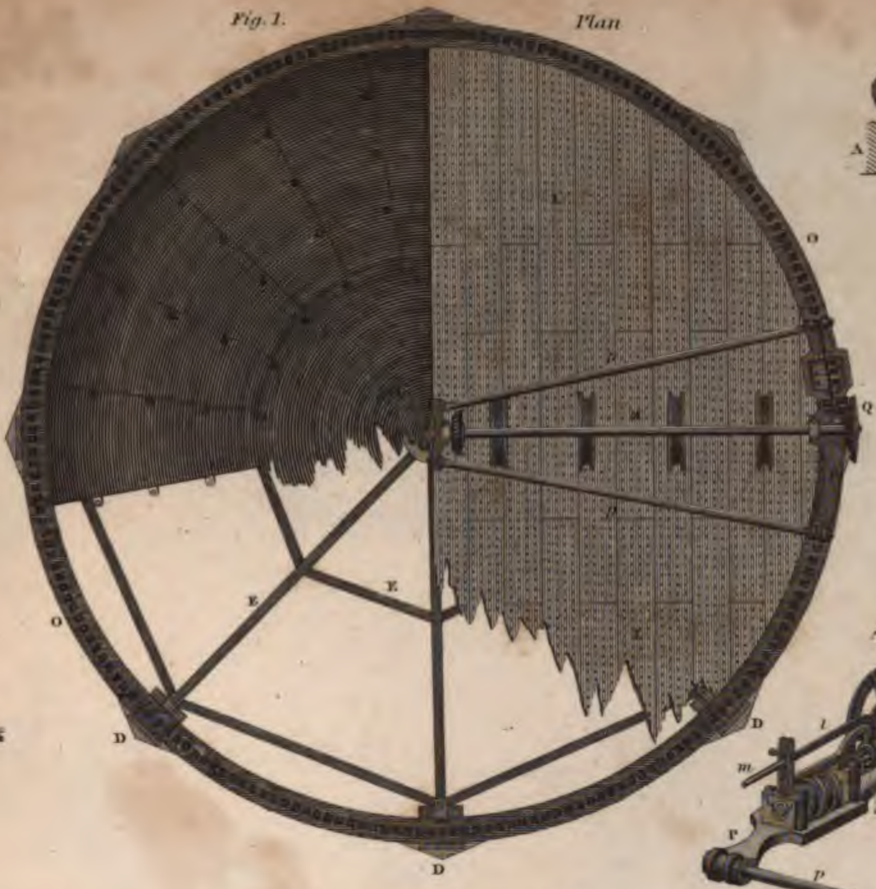
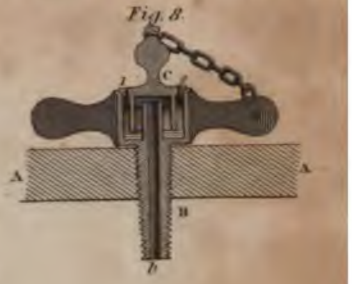


Fig. 8.



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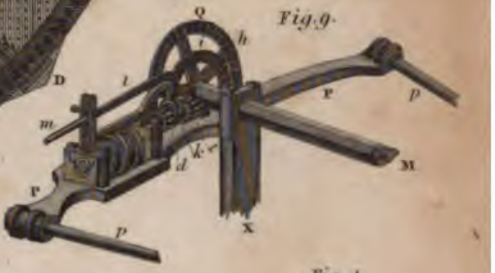
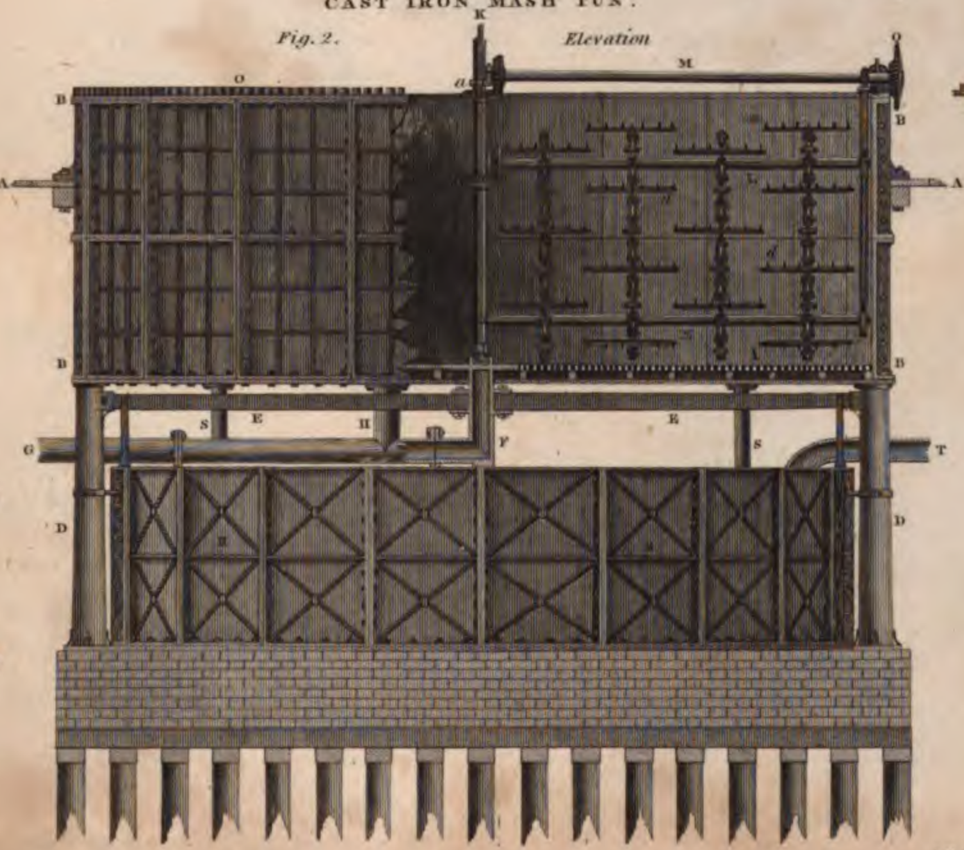


CAST IRON MASH TUN.

Fig. 2. *Elevation*



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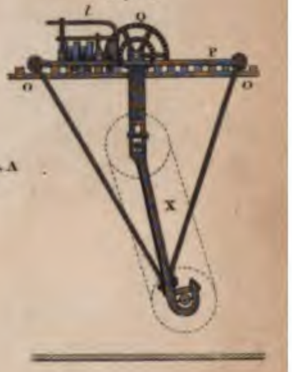

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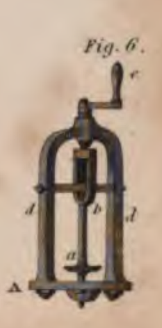
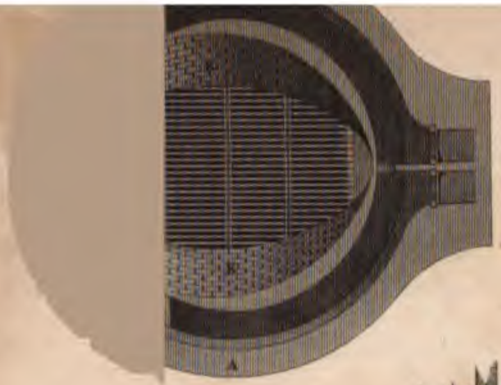
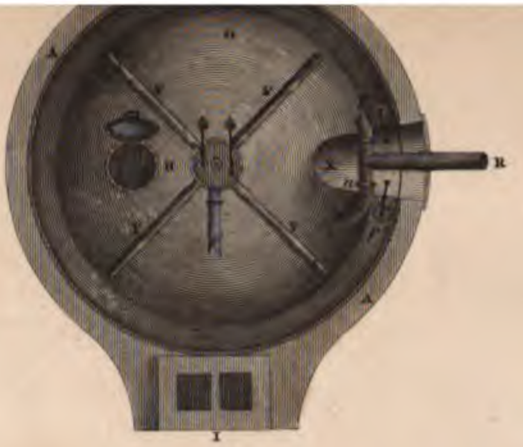


Farey Jun^r. delin J. Moffat Sculp^t. Edin^r.





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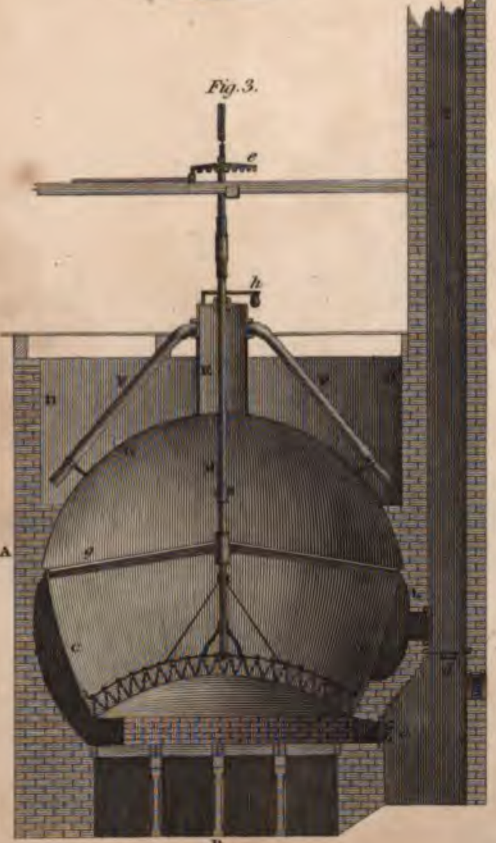

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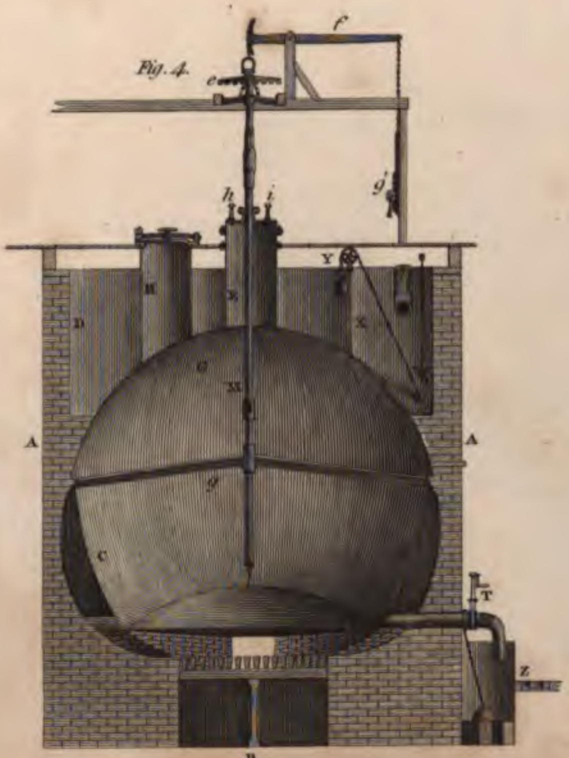


100 50 0 100 200 300 400 500 Inches

Scale of Inches

Fig. 7.

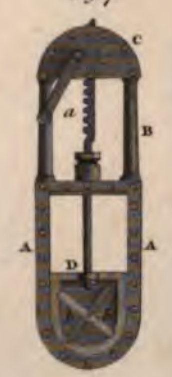
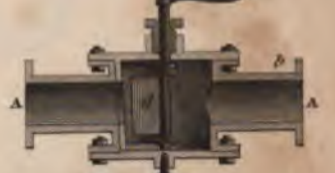


Fig. 8.



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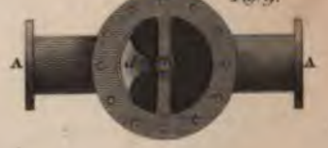

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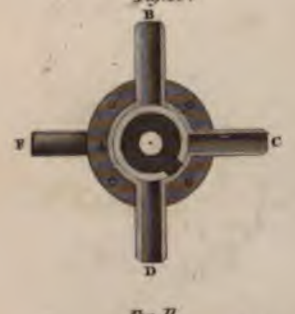

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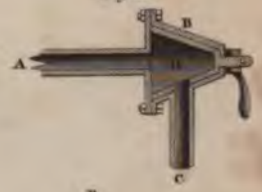
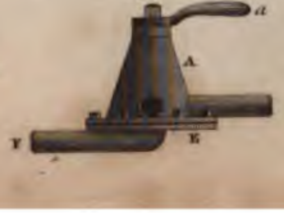


Fig. 11.



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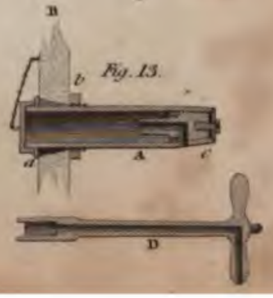


BRIDGE. *PLATE LXXX.*

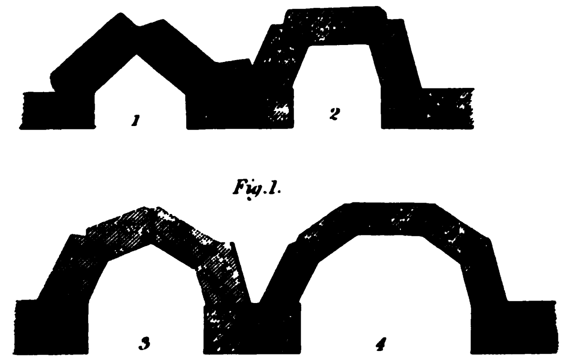
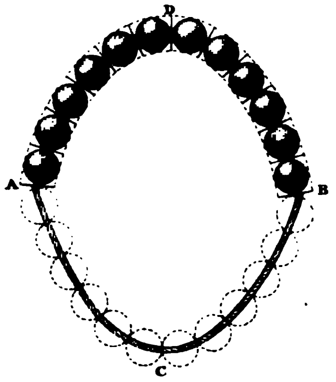


Fig. 1.

Fig. 2.



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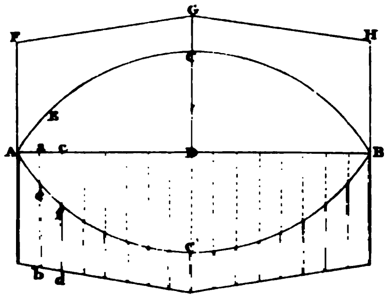

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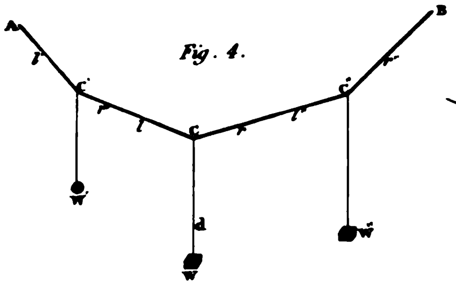

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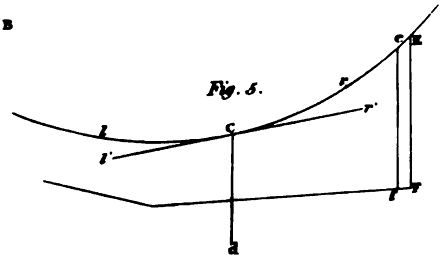

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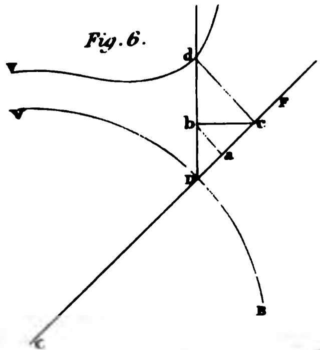
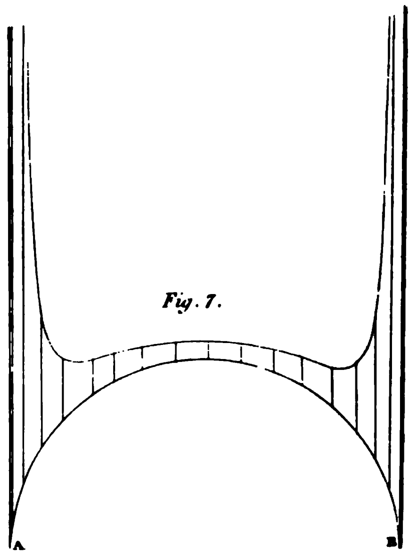


Fig. 7.



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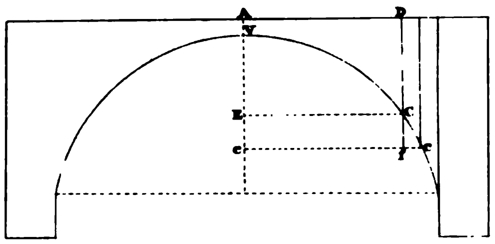

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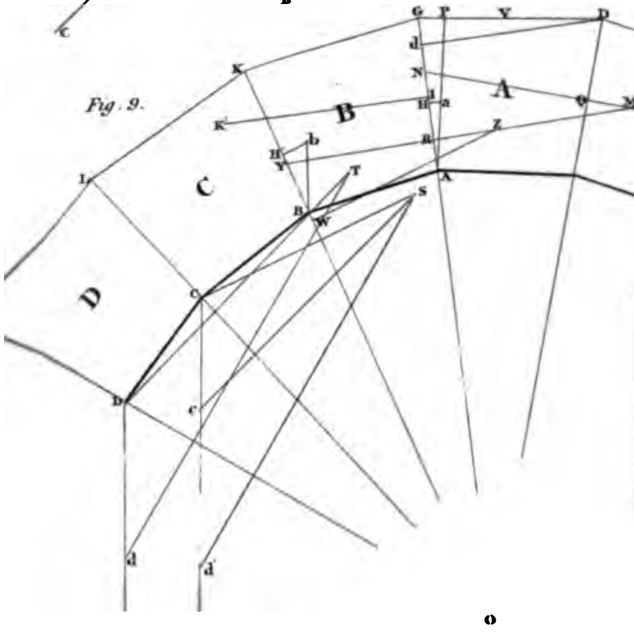

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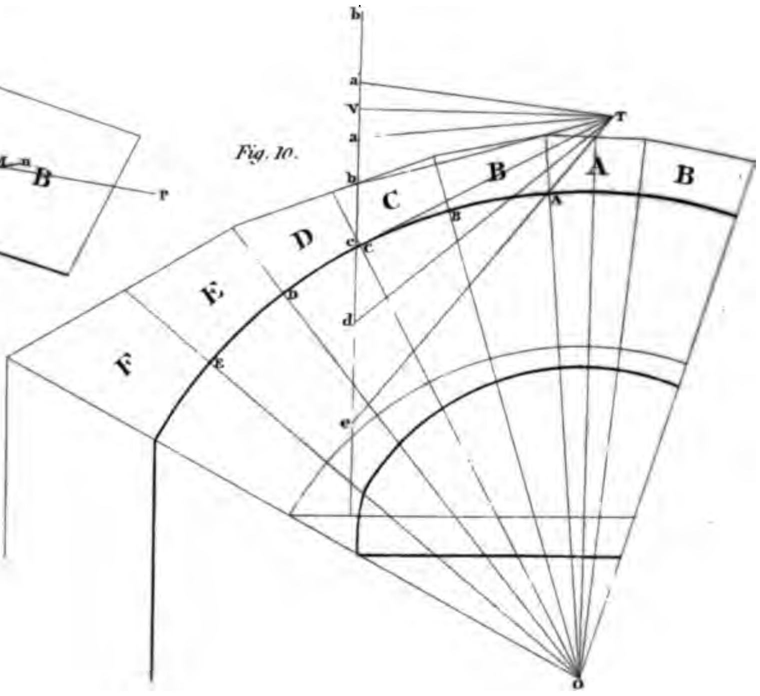
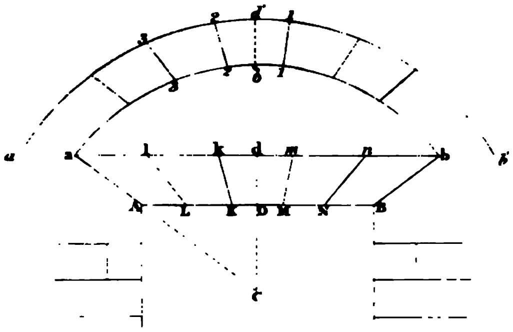


From Original Drawings.
J. Moffat Sculpt Edinr

Fig. 1.



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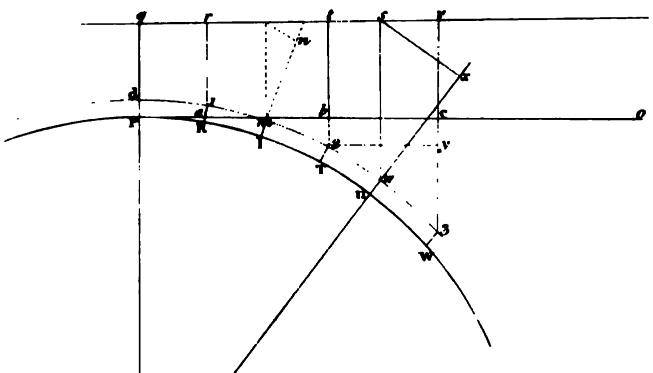

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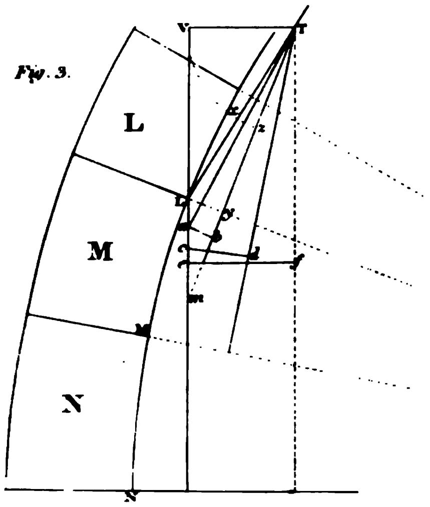

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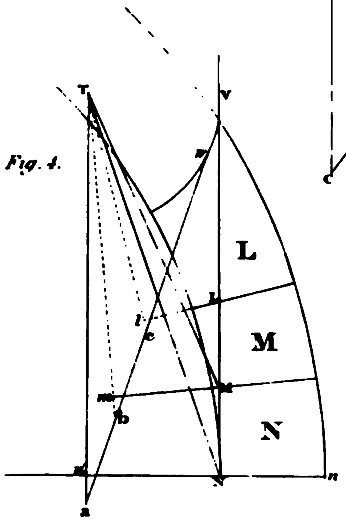

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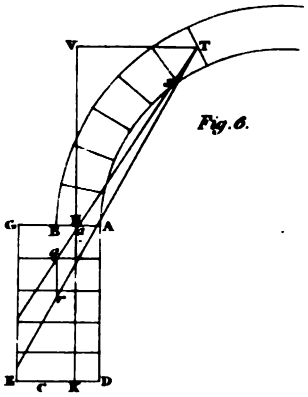

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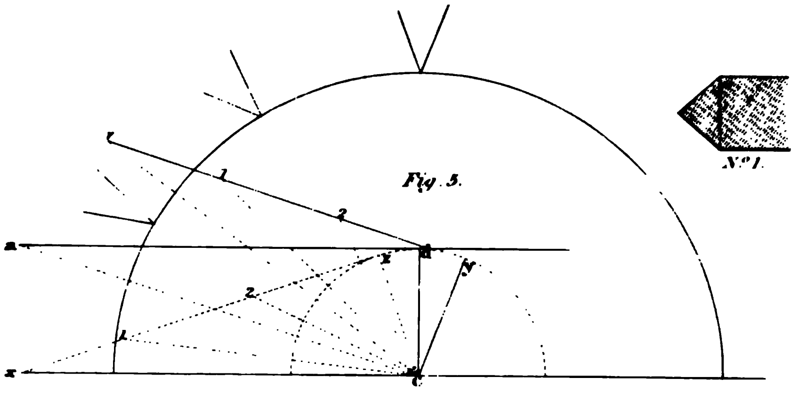
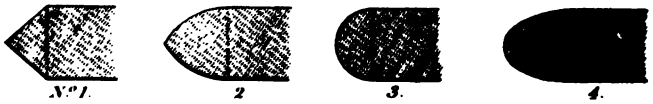


STERLINGS

Fig. 7.



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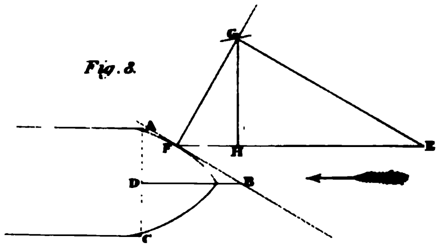

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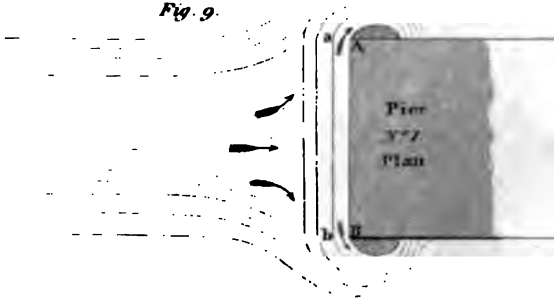
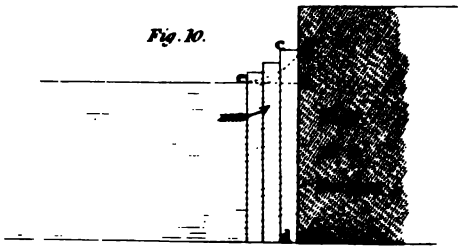


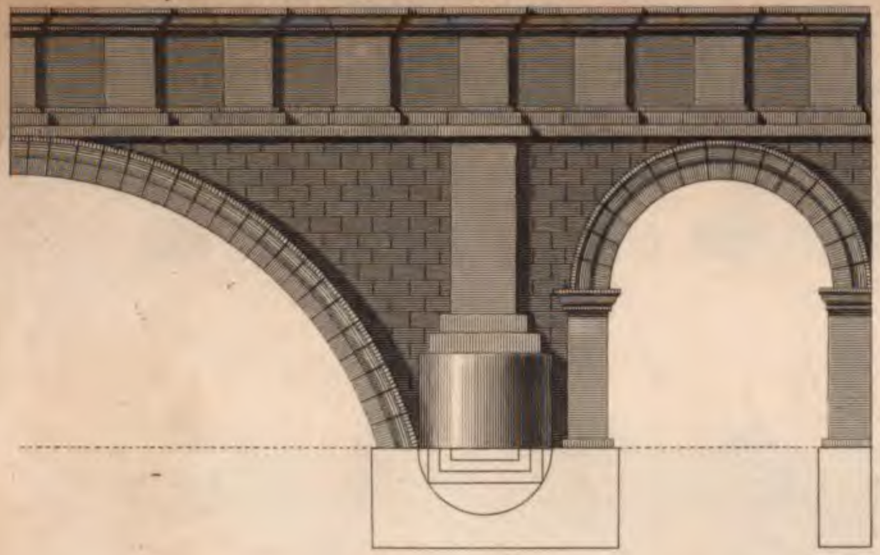
Fig. 10.



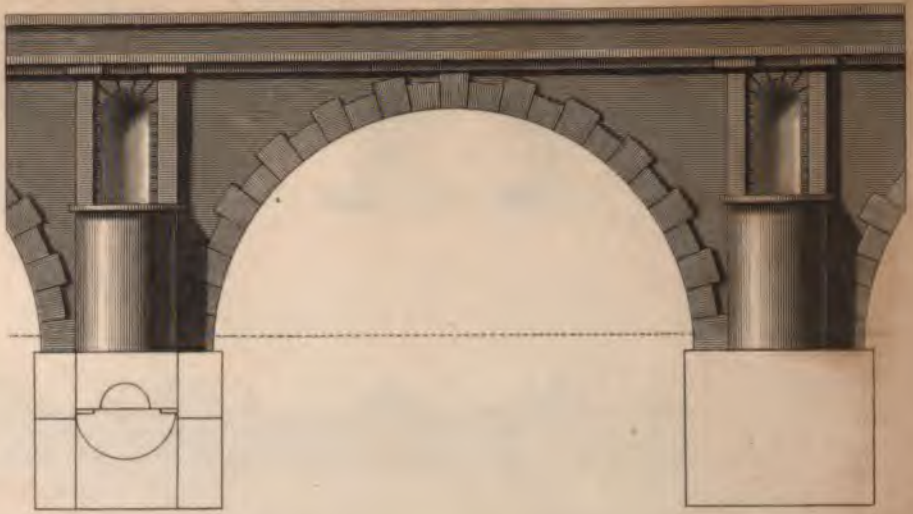
From Original Drawings.

J. Moffat Sculpt Edin?

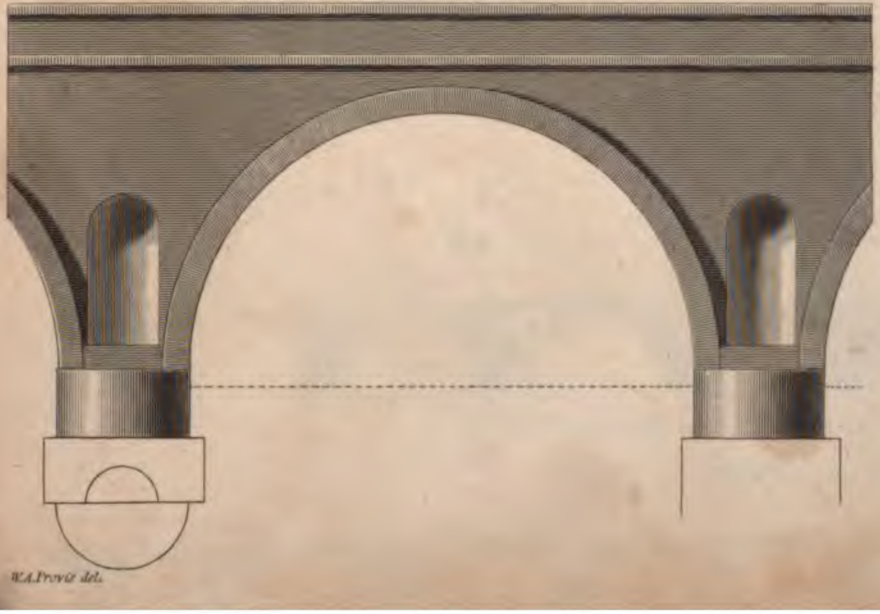
Bridges in Rome



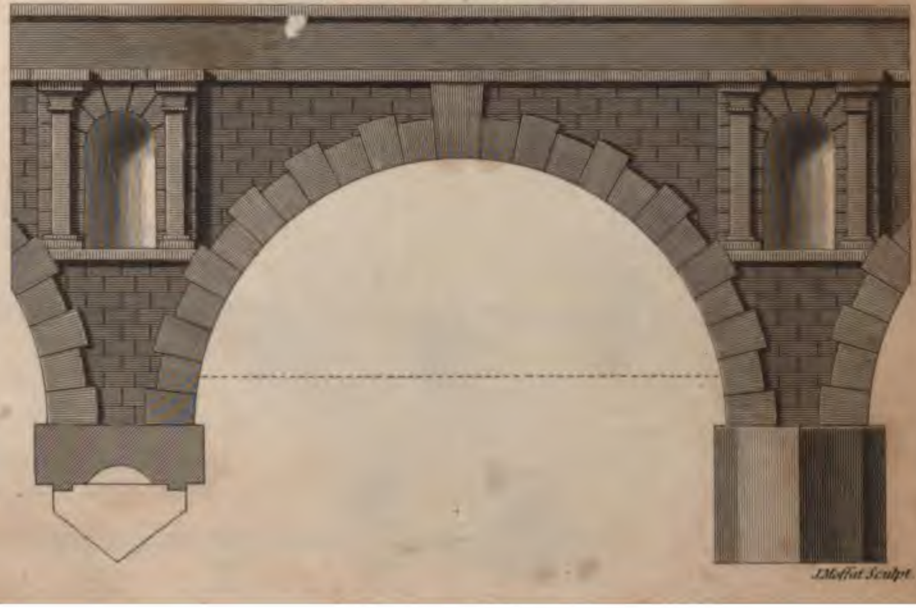
Pons de Ælio Adriano



Pons Fabricius



Pons Milvius

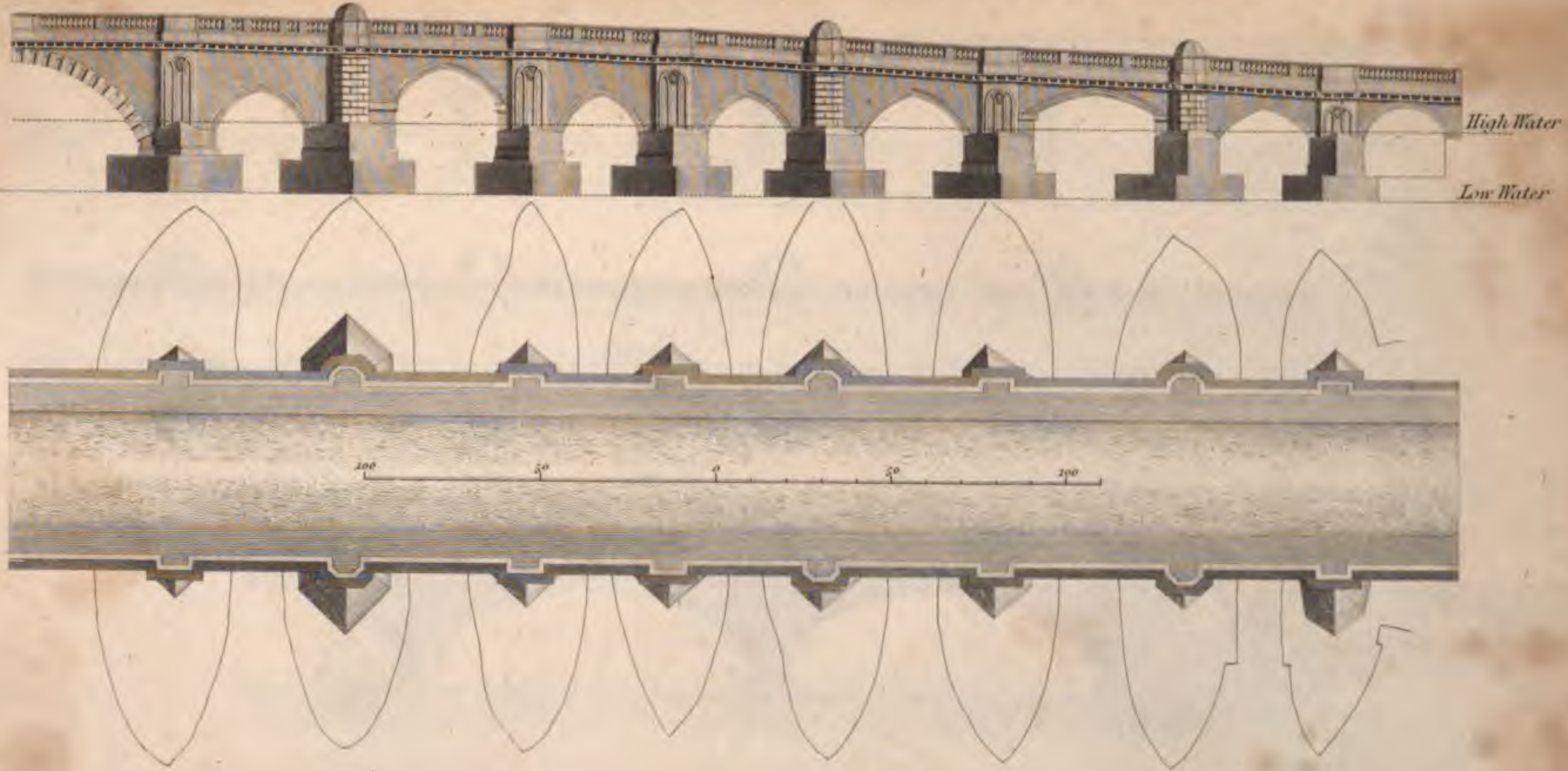


Pons Senatorius

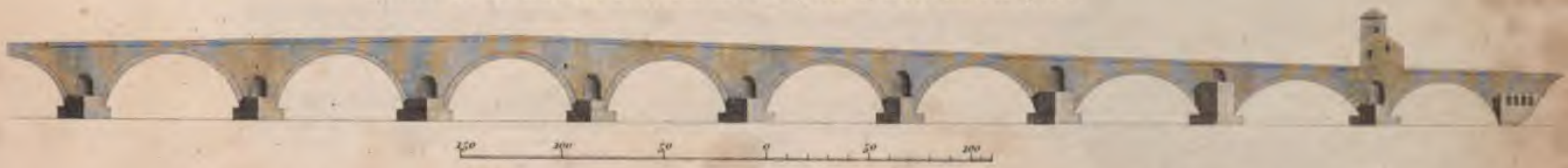
W.A. Provis del.

J. Moffat Sculpt.

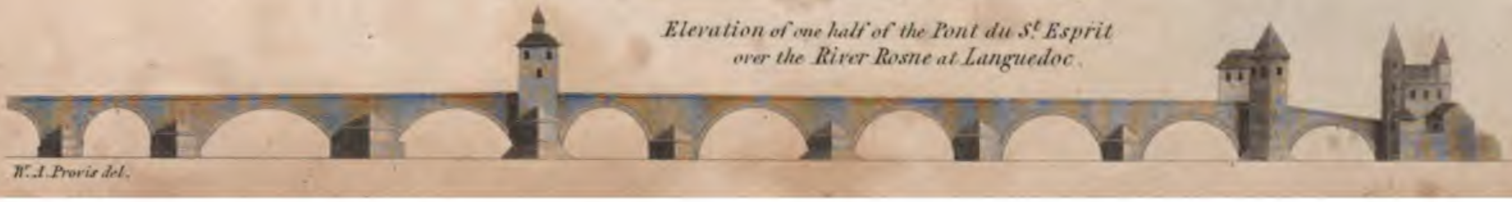
PLAN and ELEVATION of the South end of LONDON BRIDGE from the CENTRE of the GREAT ARCH.



Elevation of one half of the Pont de la Guillotiere over the River Rosne at Lyons.



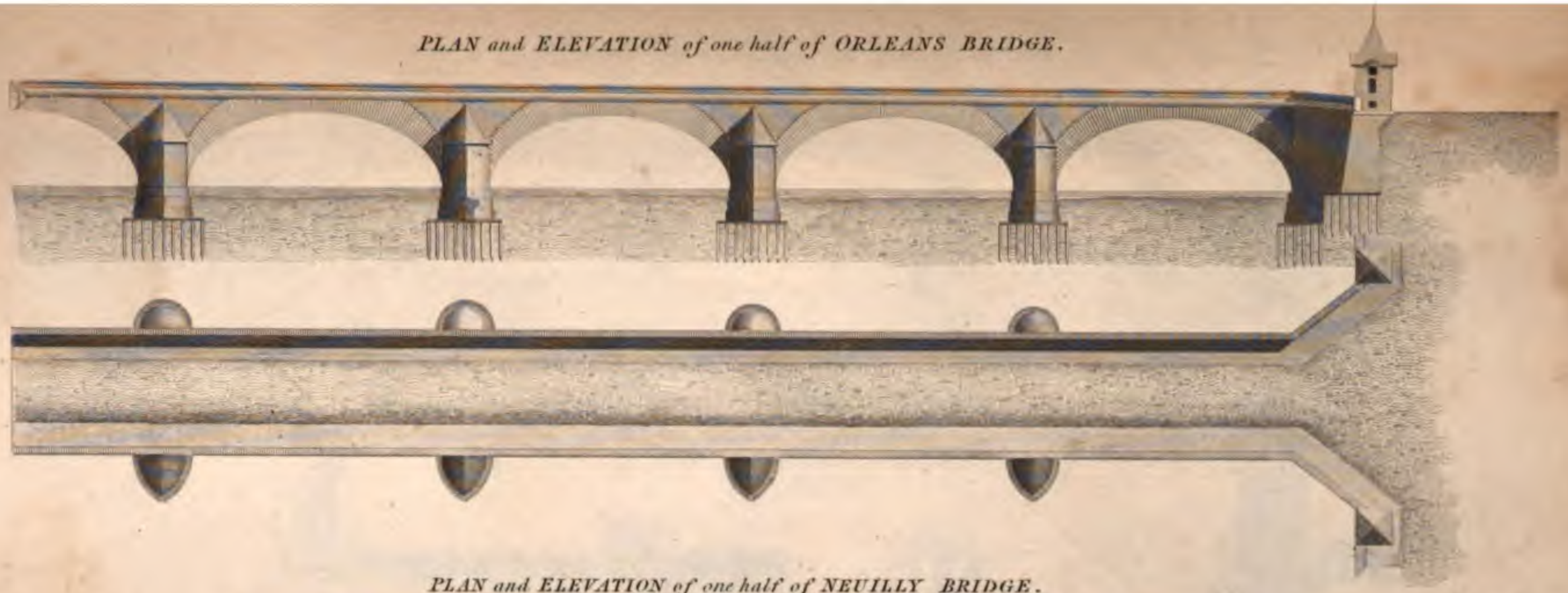
Elevation of one half of the Pont du St. Esprit
over the River Rosne at Languedoc.



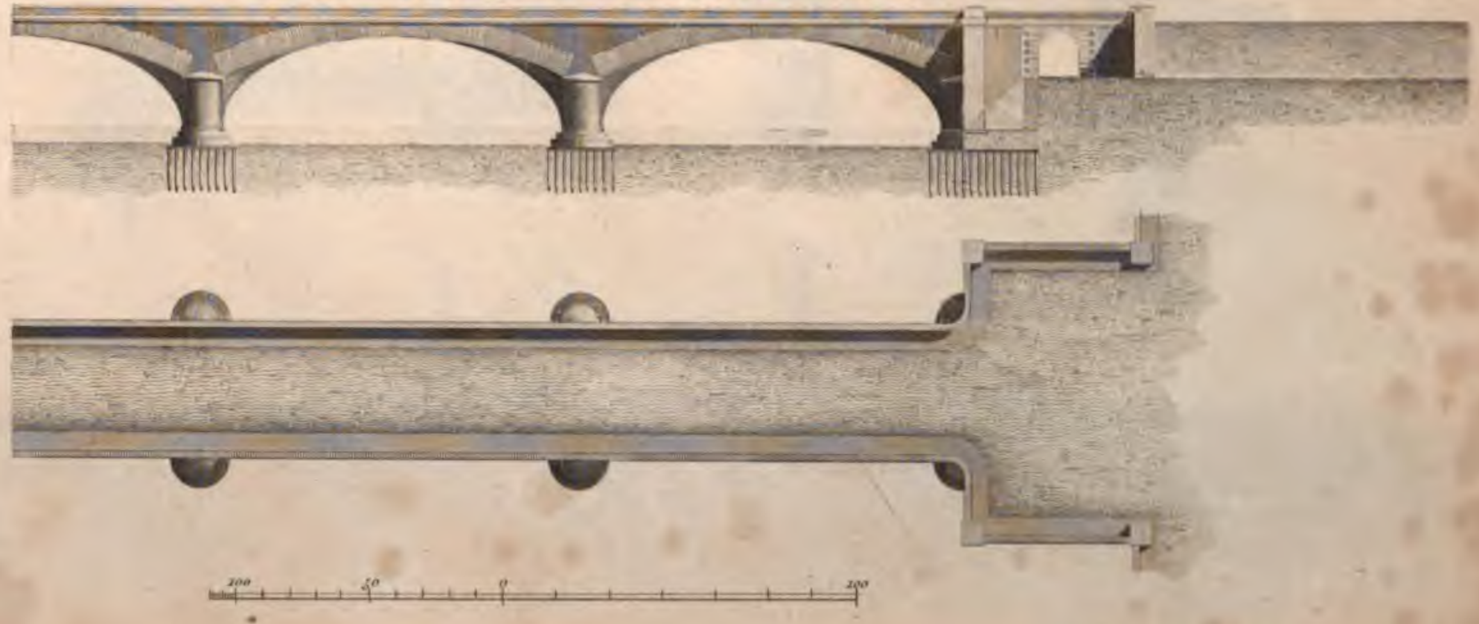
W. A. Provis del.

J. Moffat Sculp.

PLAN and ELEVATION of one half of ORLEANS BRIDGE.



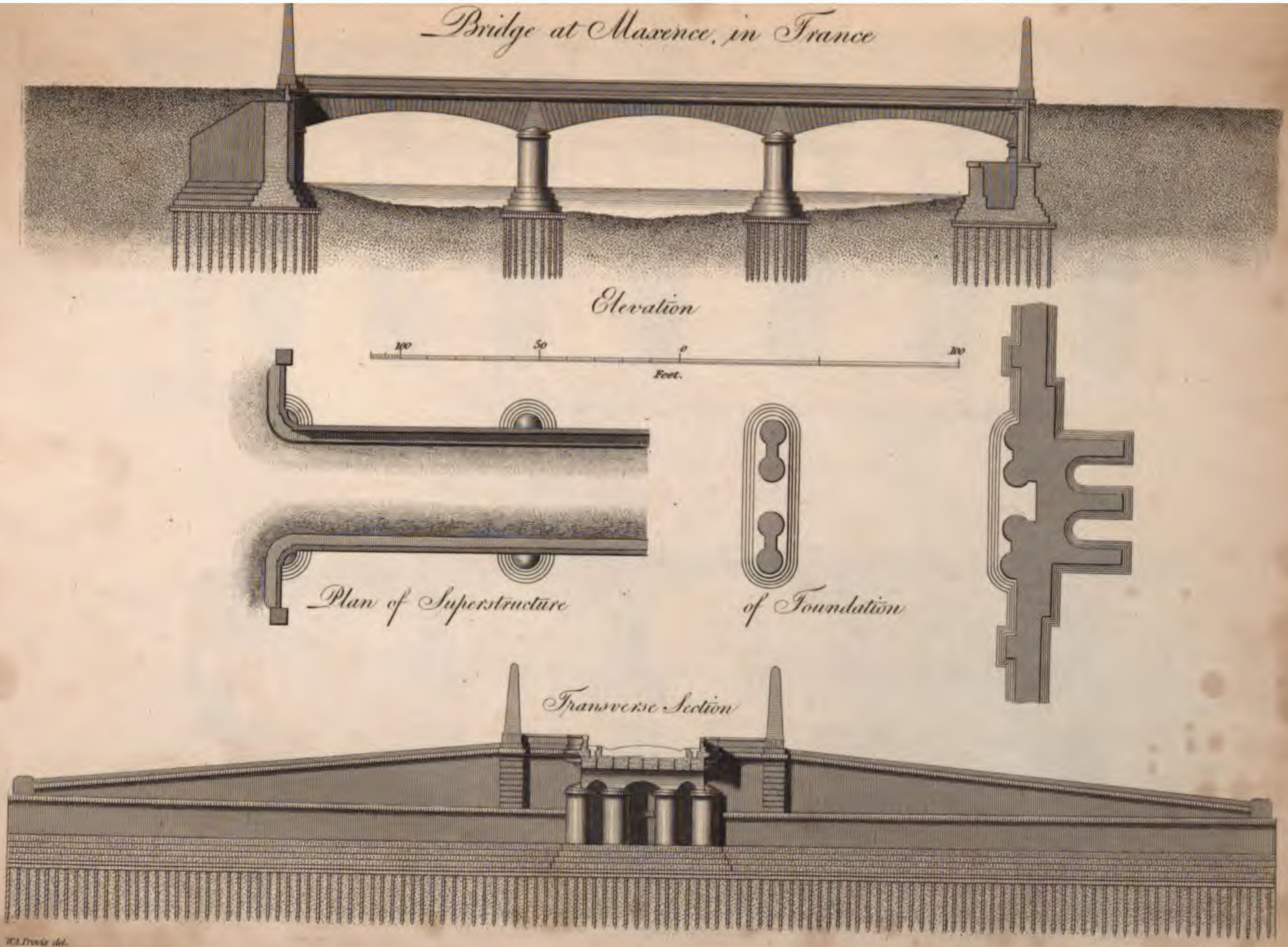
PLAN and ELEVATION of one half of NEUILLY BRIDGE.



W. A. Provis del.

J. Moffat Sculpt.

Bridge at Maxence, in France



Elevation

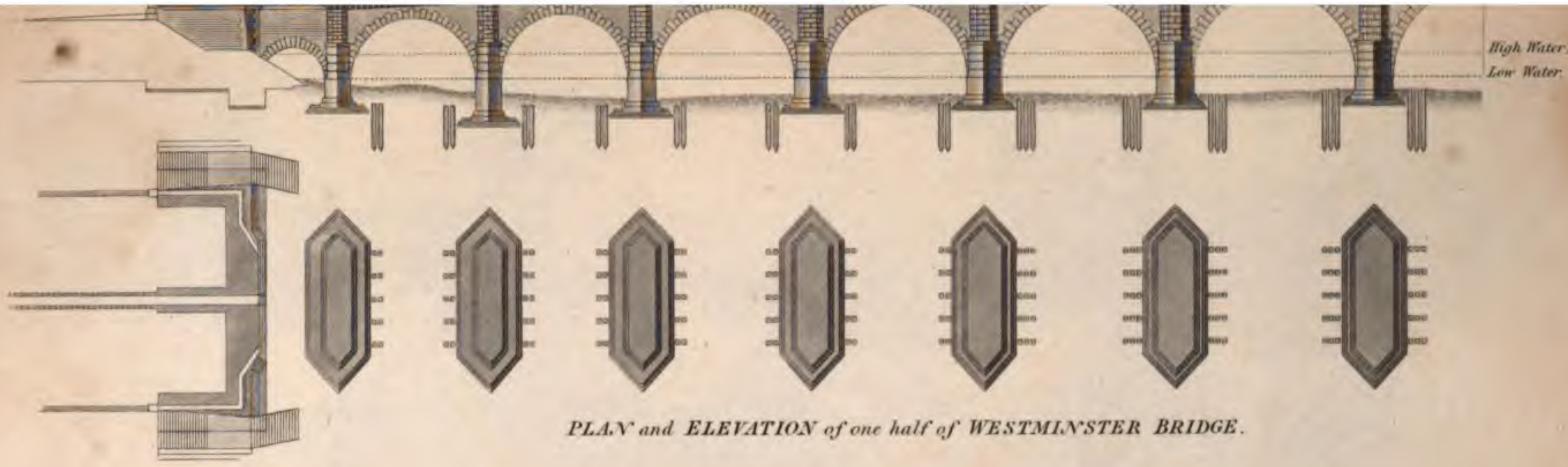
Plan of Superstructure

of Foundation

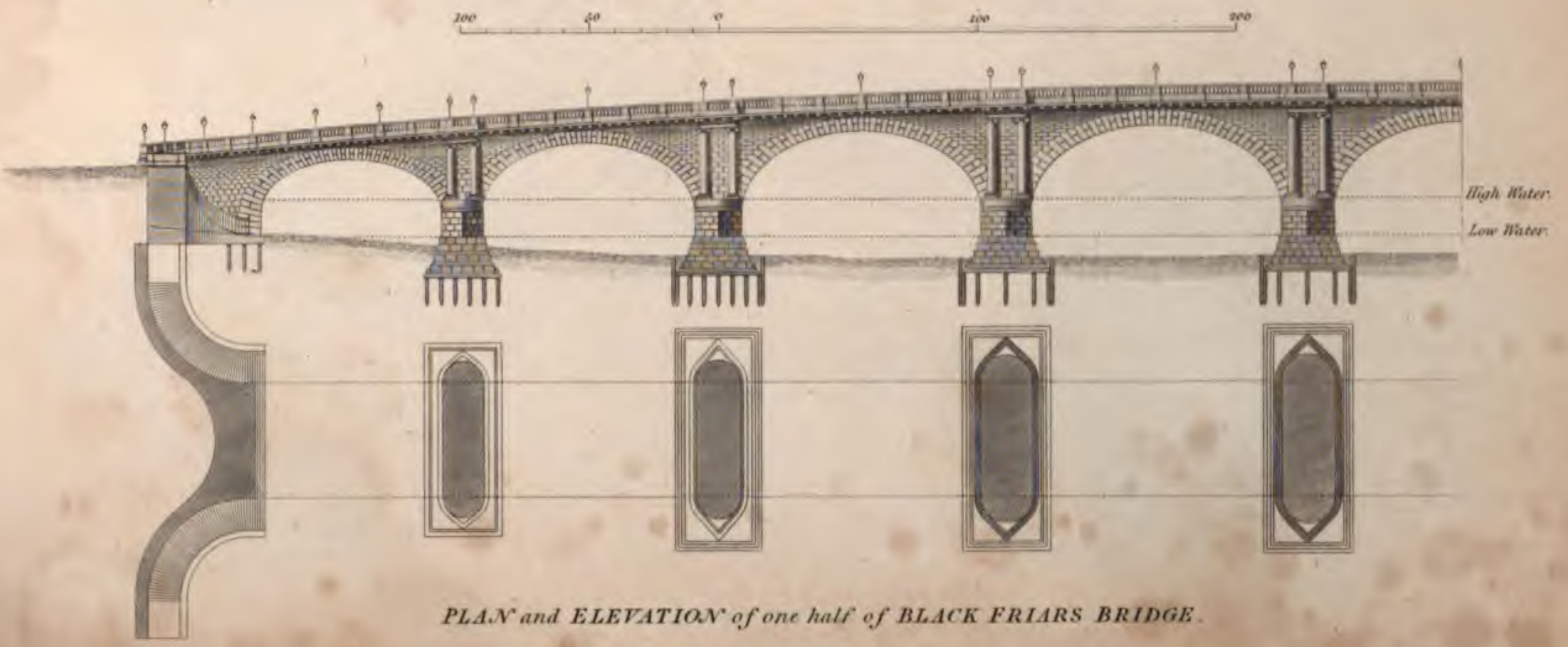
Transverse Section

W.A.Provis del.

J. Moffat Sculpt.



PLAN and ELEVATION of one half of WESTMINSTER BRIDGE.

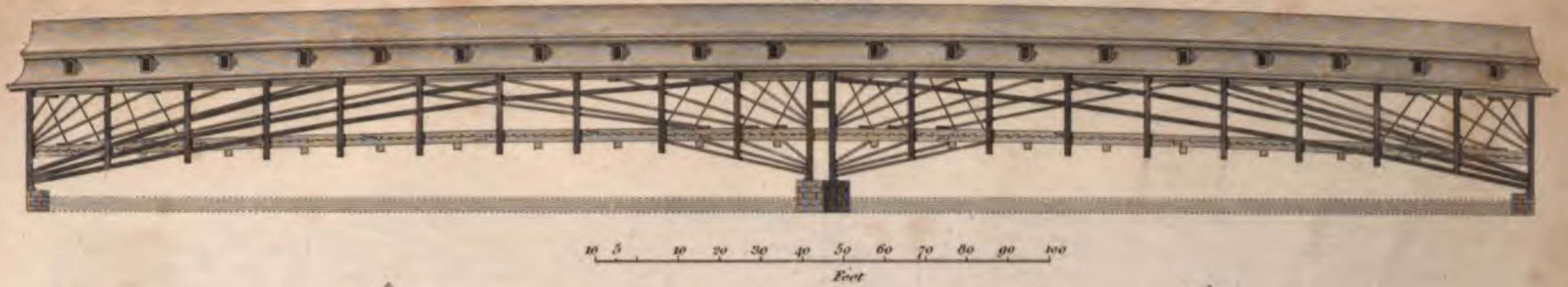


PLAN and ELEVATION of one half of BLACK FRIARS BRIDGE.

W. A. Provis del.

J. Moffat sculp.

Fig. 1



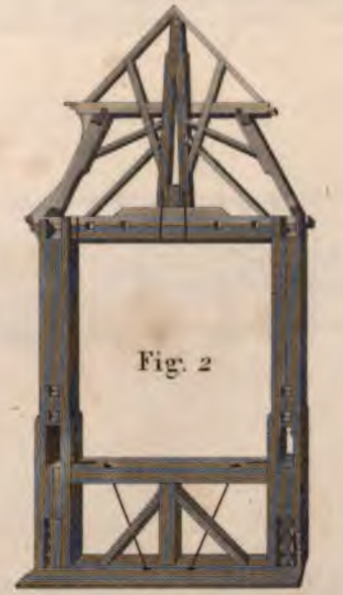


Fig. 2

The Wooden Bridge at Schaffhausen in Switzerland.

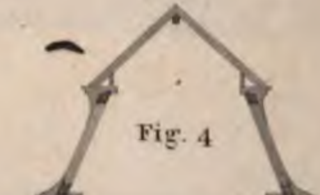


Fig. 4

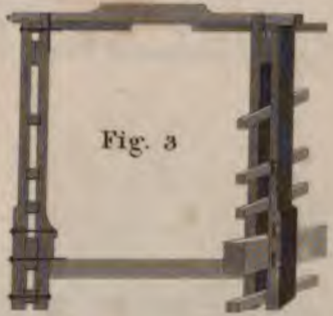
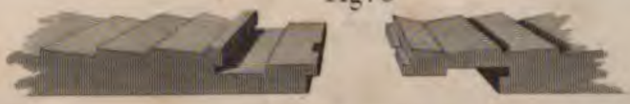


Fig. 3

Fig. 6



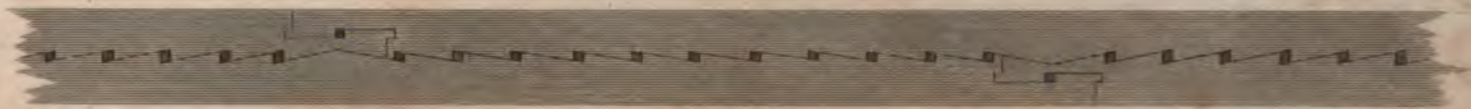


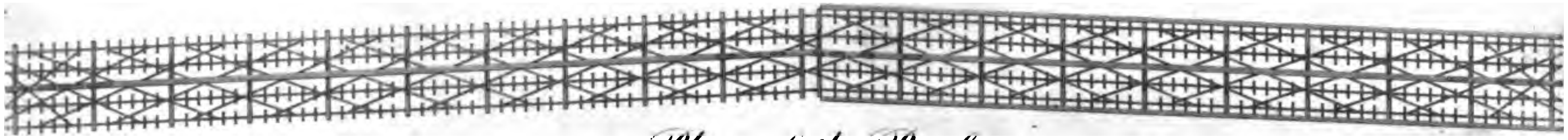
Fig. 5

W. A. Provis del.

J. Mollis Sculpt

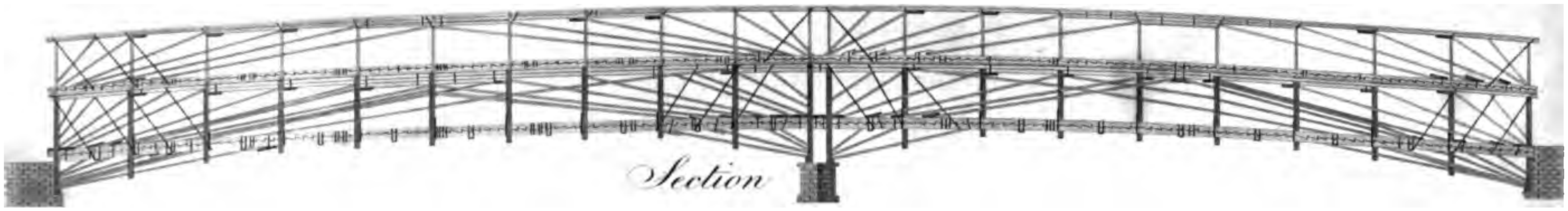
The Wooden Bridge at Schaffhausen, in Switzerland

Fig. 3.



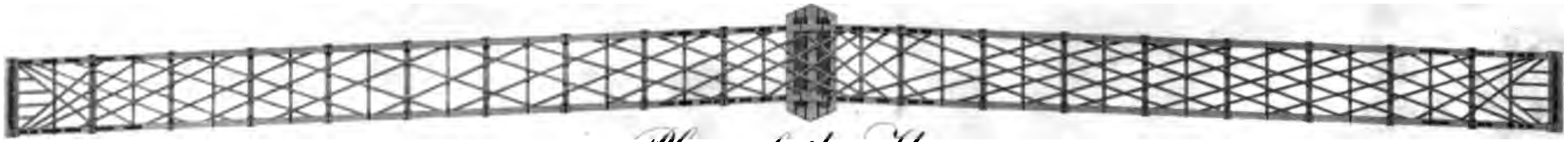
Plan of the Roof

Fig. 1.

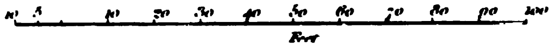


Section

Fig. 2.



Plan of the Floor

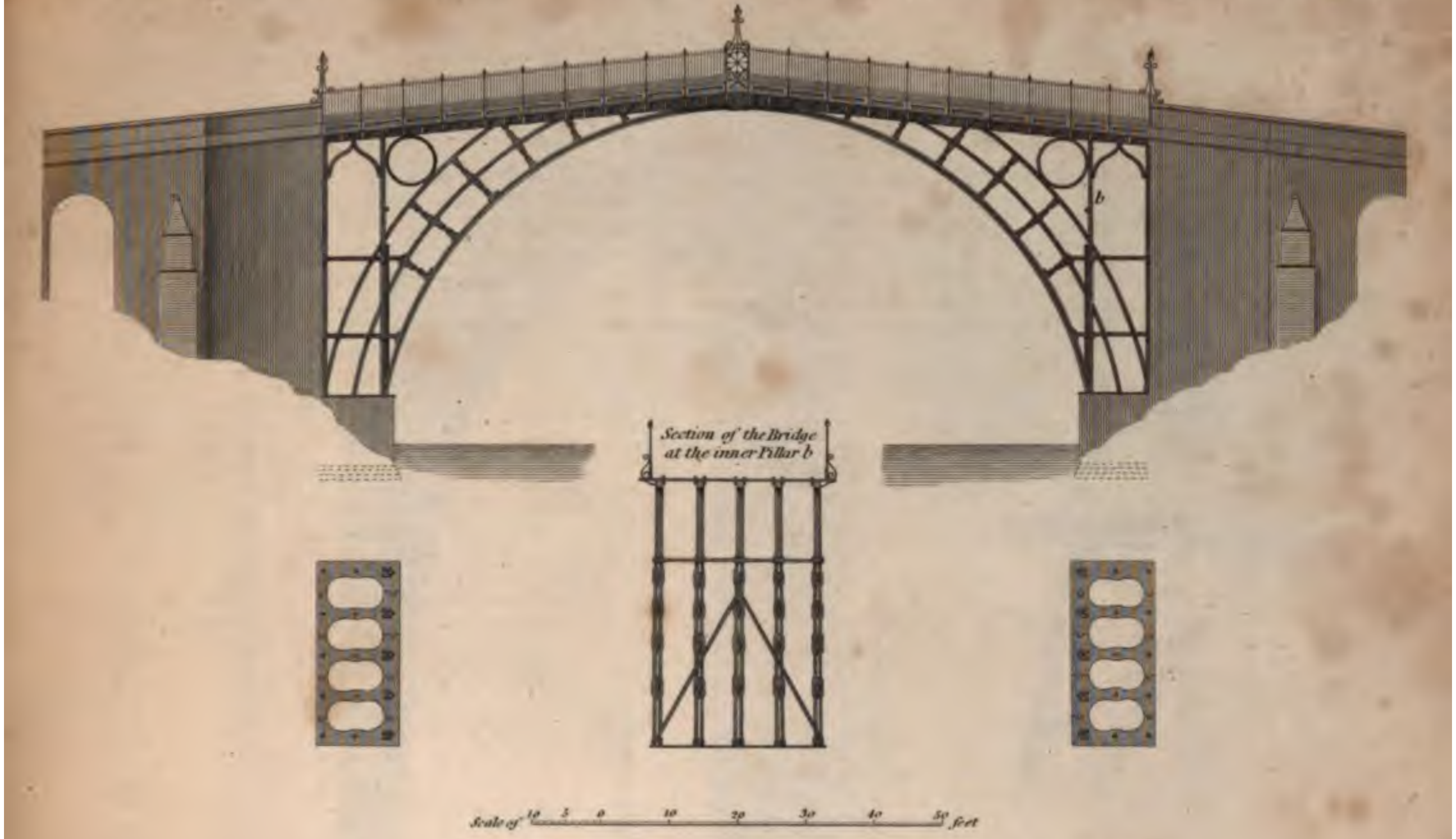


W. A. Provis del.

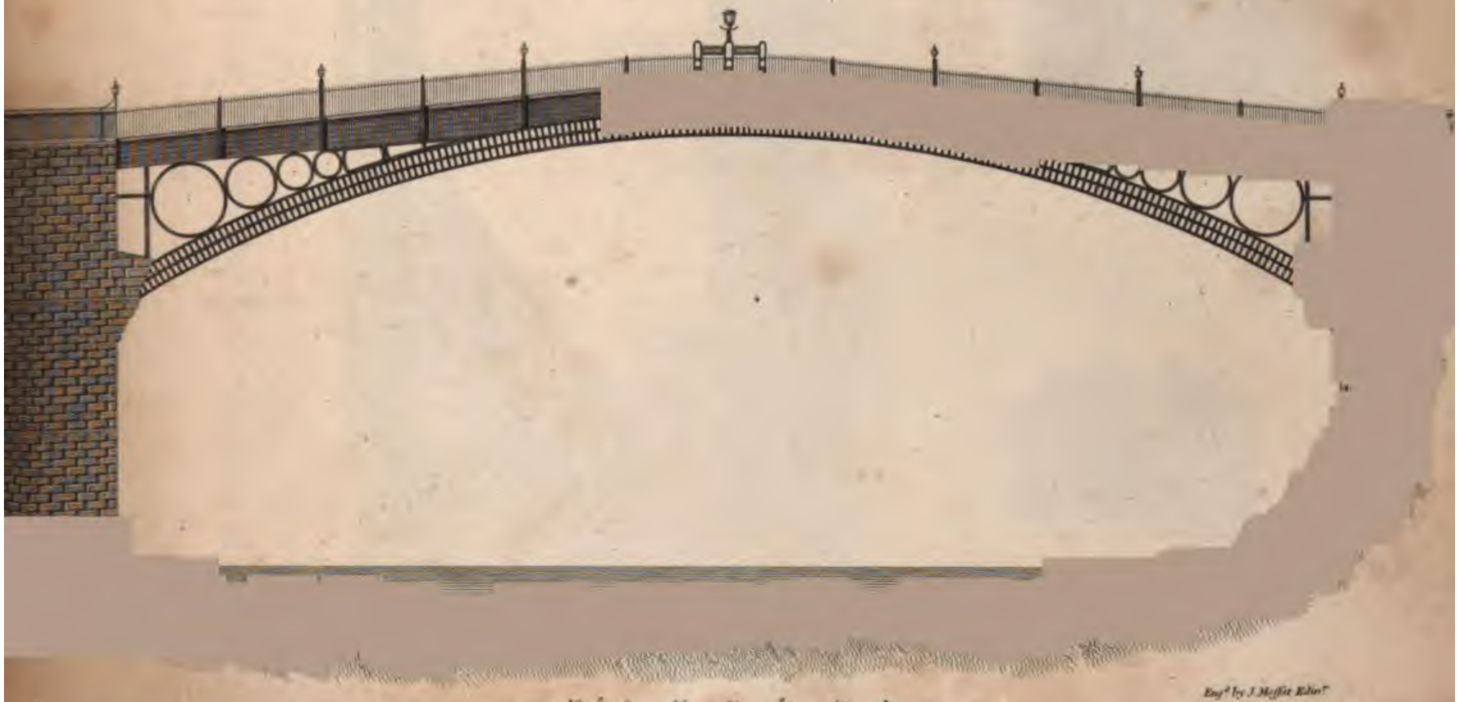
J. Moffat Sculpt.

BRIDGE. *PLATE XCI.*

PLAN ELEVATION and SECTION of the FIRST IRON BRIDGE built over the RIVER SEVERN near COALBROOK-DALE in the COUNTY of SALOP.


b
Section of the Bridge at the inner Pillar b
Scale of 10 5 0 10 20 30 40 50 feet

ELEVATION of the IRON BRIDGE built over the RIVER WEAR at SUNDERLAND in the COUNTY of DURHAM.



Engd by J. Moffat Edinr.

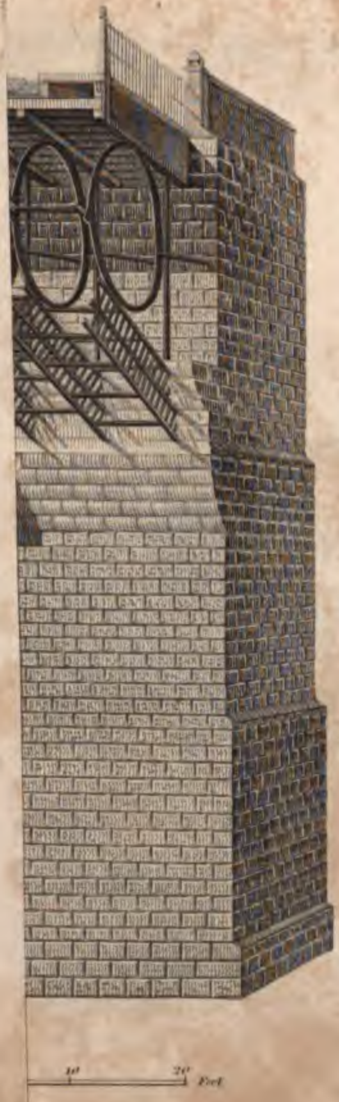

10
20 Feet

Fig. 1.

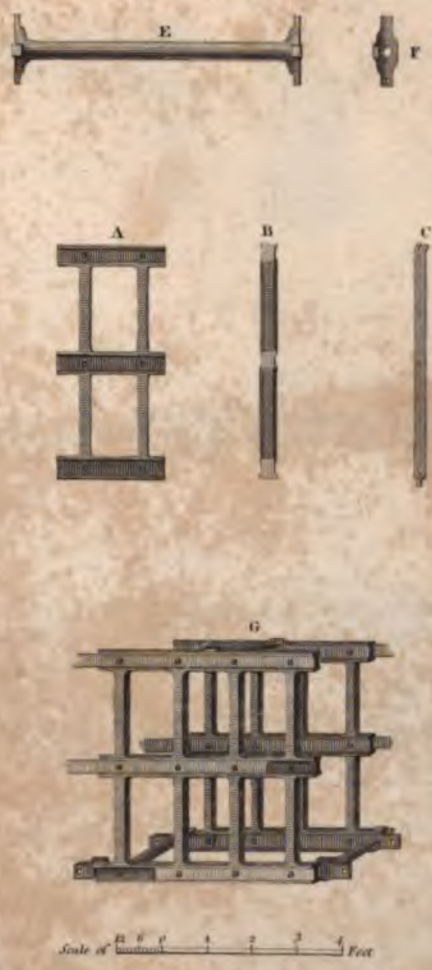
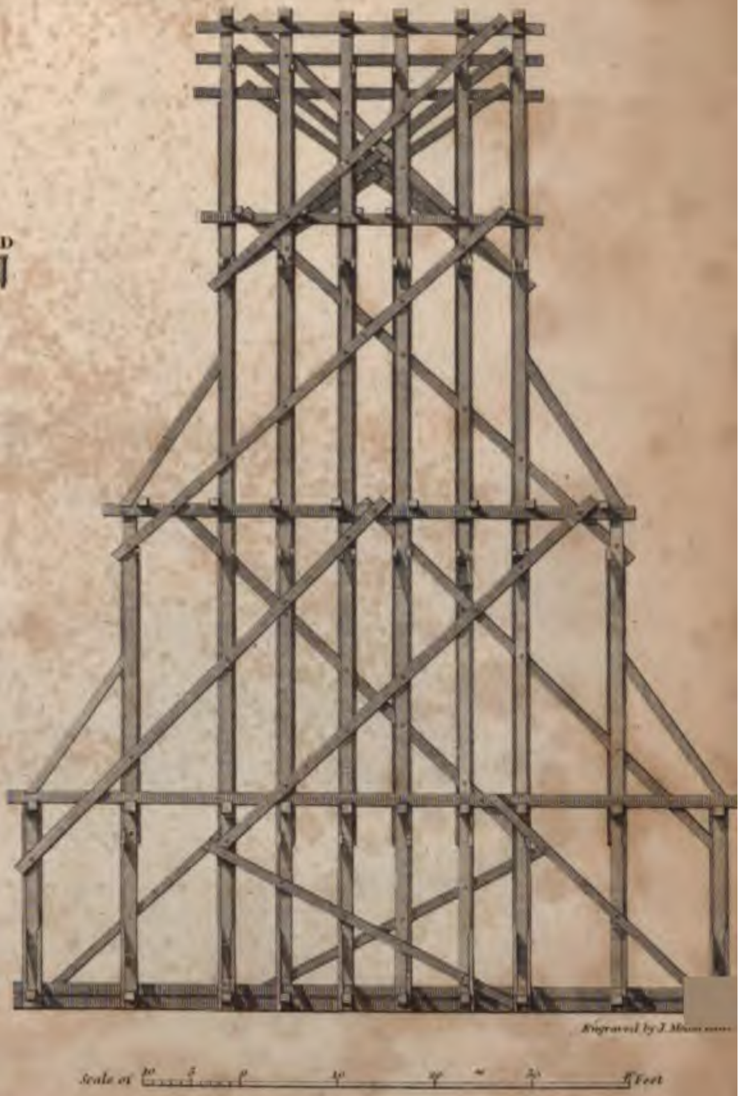

E
F
A
B
C
D
G
Scale of 12 6 0 1 2 3 4 Feet

Fig. 2.


Engraved by J. [illegible]
Scale of 10 5 0 10 20 30 40 Feet

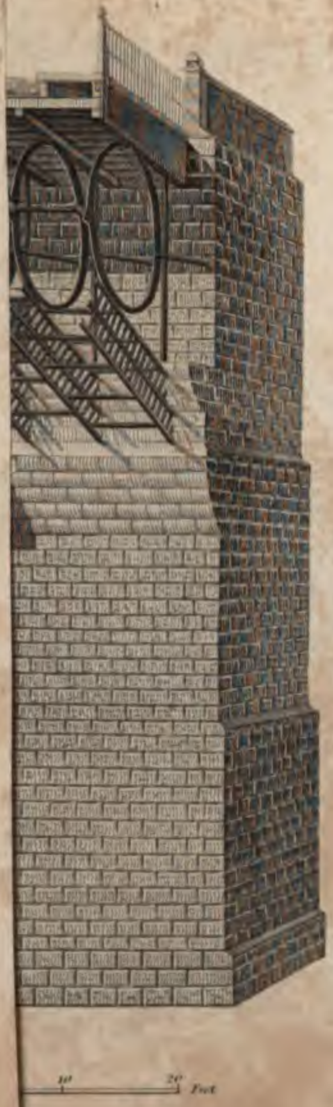


Fig. 1.

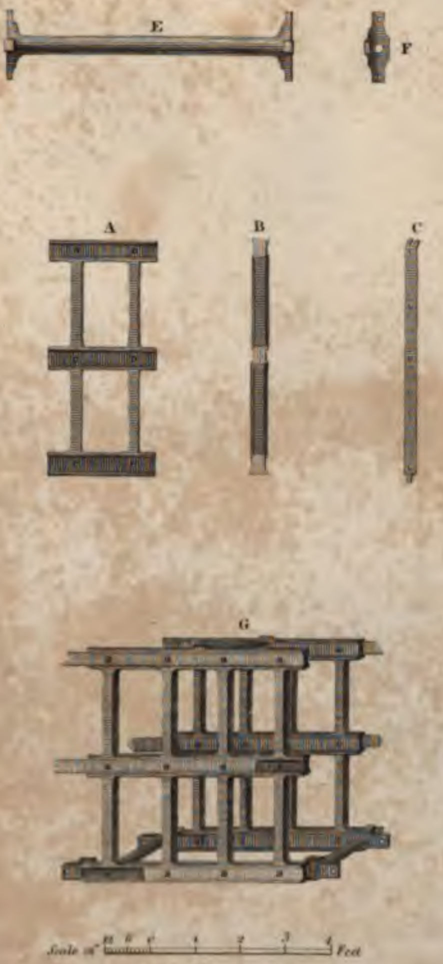
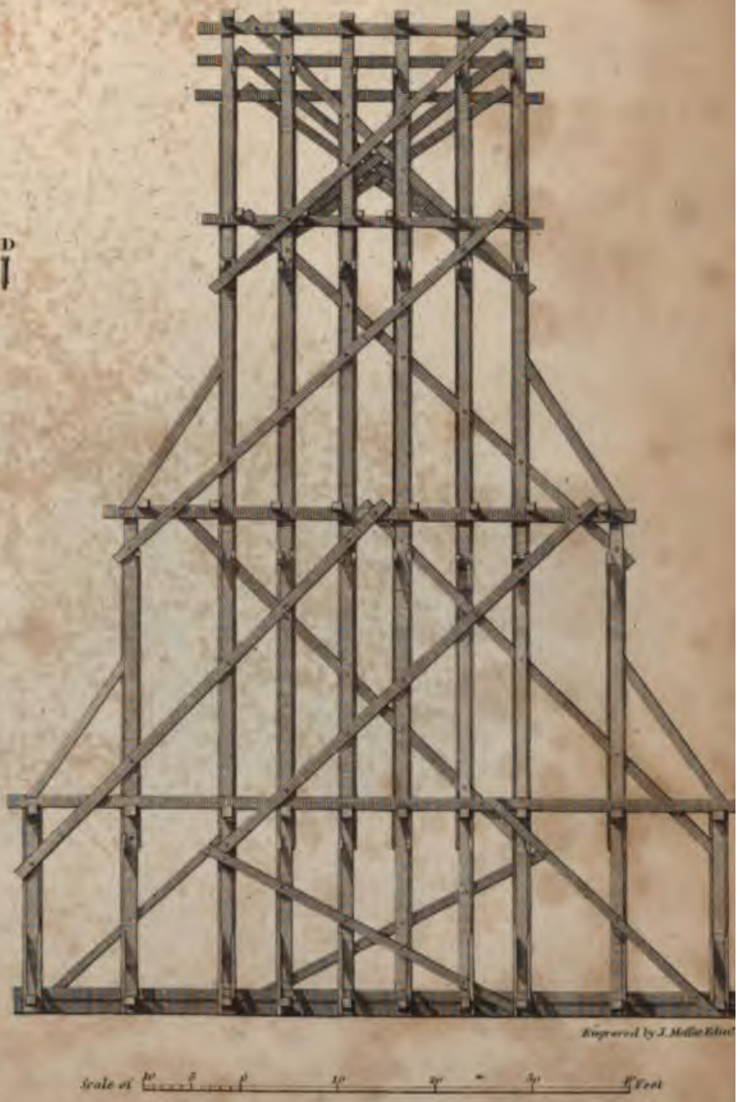
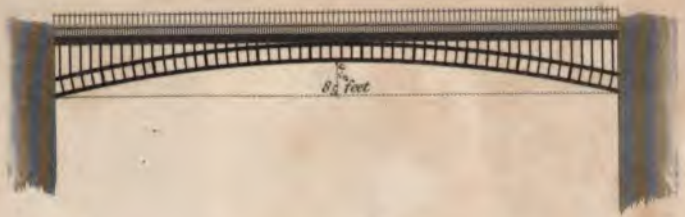


Fig. 2.

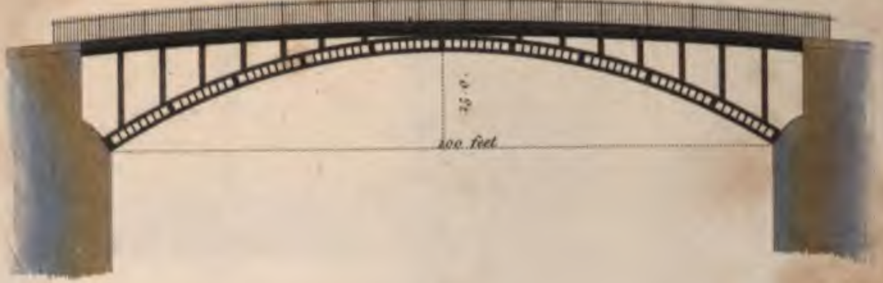


Engraved by J. Moffat Edin.

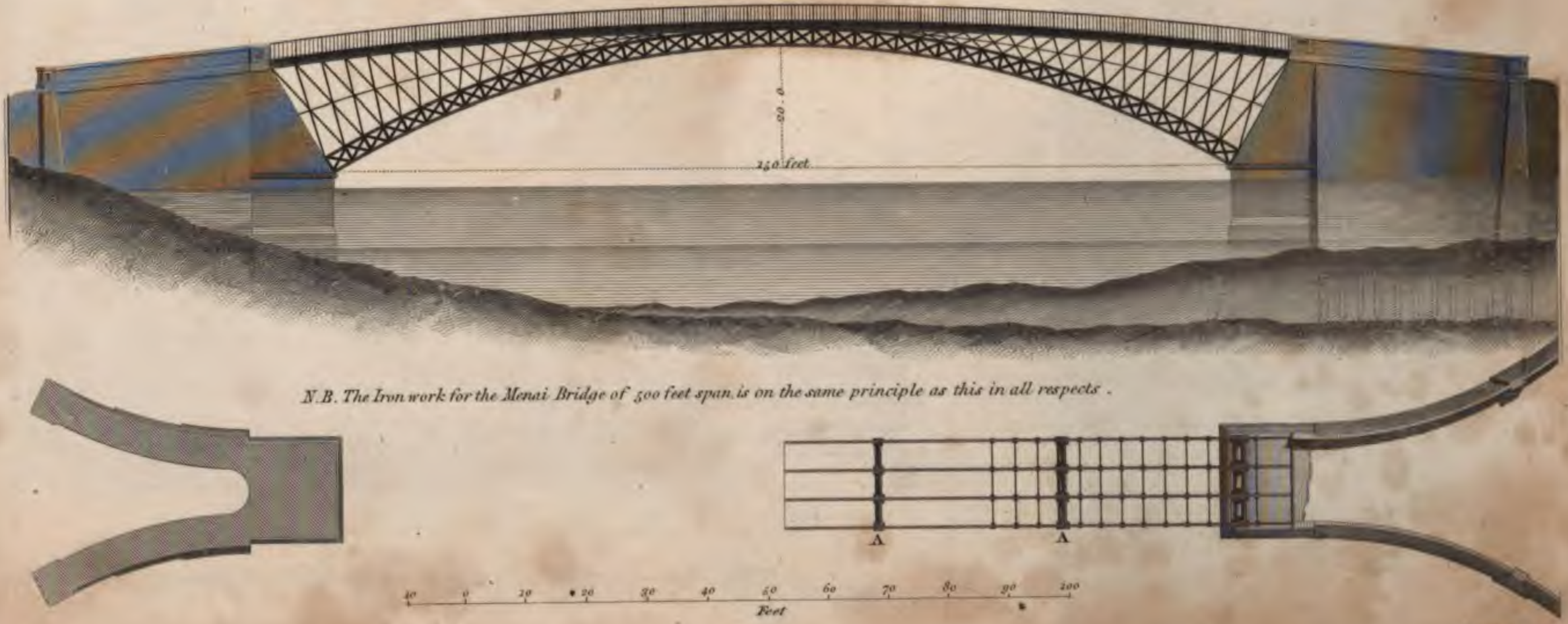
Boston Bridge.



Bristol Bridge.



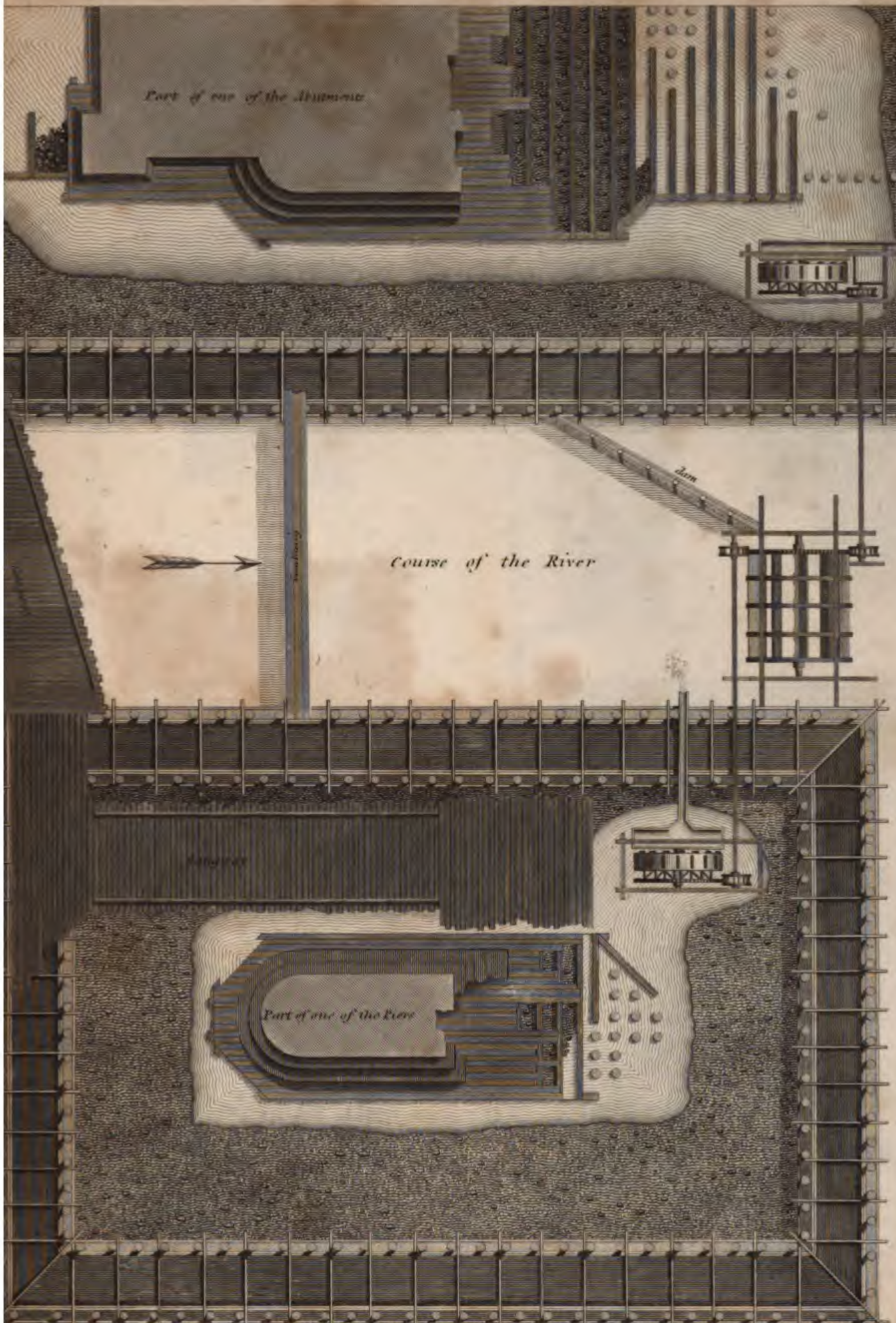
Bonar Bridge.



N.B. The Iron work for the Menai Bridge of 500 feet span is on the same principle as this in all respects.

W.A.Provis delin.

J.Moffat Sculpt.



PLAN *shewing the method of emptying the Foundations of* **NEUILLY BRIDGE.**

Scale of 10 5 0 10 20 30 40 50 *Feet.*

Provis delin. *Engd by J. Moffat Edinr*

BRIDGE.

PLATE XCVI.

COFFERDAM used for rebuilding PULTENEY BRIDGE, BATH.

Fig. 4.

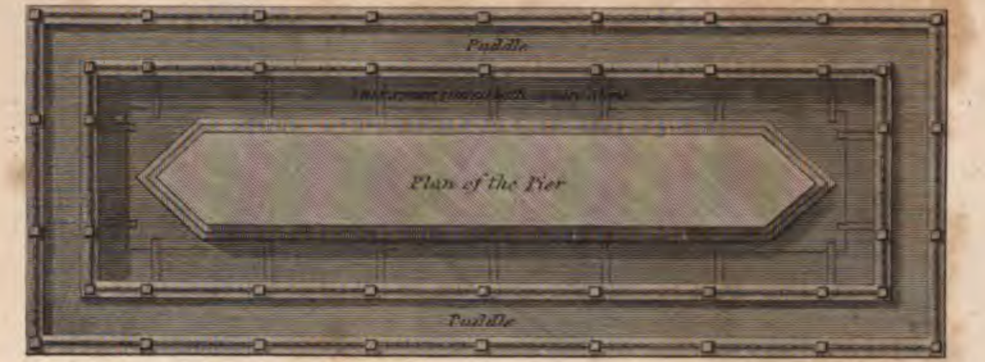
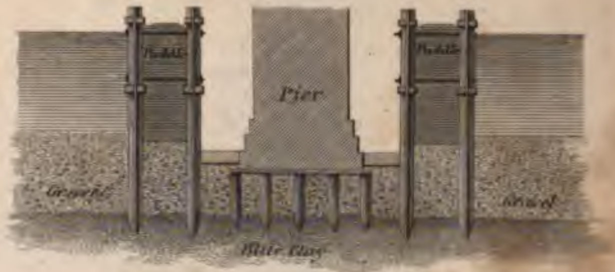


Fig. 5.
SECTION



COFFERDAM used for building BEWDLEY BRIDGE.

Fig. 1.

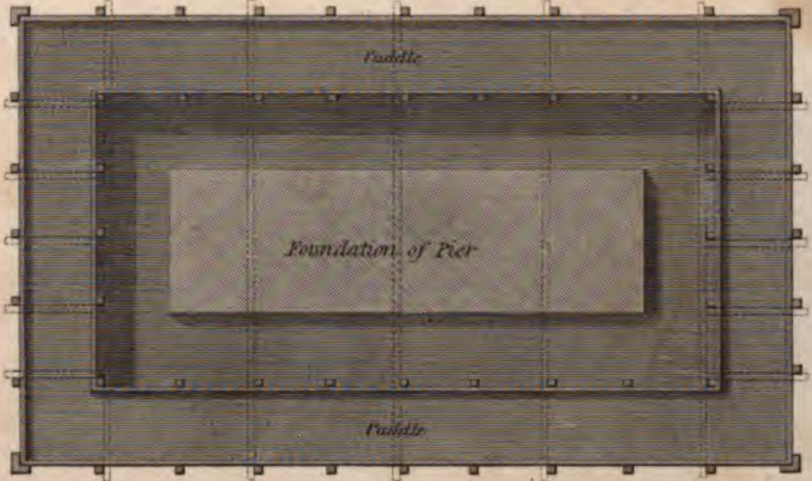


Fig. 3.

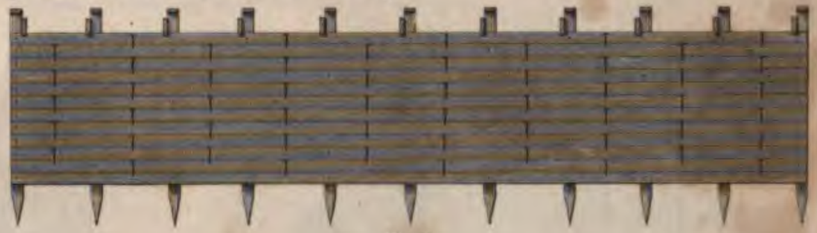
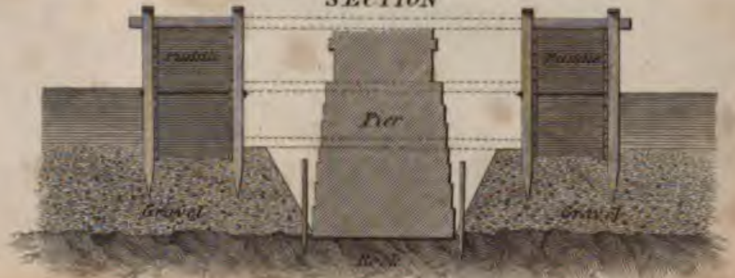


Fig. 2.
SECTION



W. A. Provis del.

Scale of 10 5 0 10 20 30 40 50 Feet

J. Moffat Sculpt. Edinr.

Fig. 1.

Cofferdam for founding a Pier by a single row of Piles.

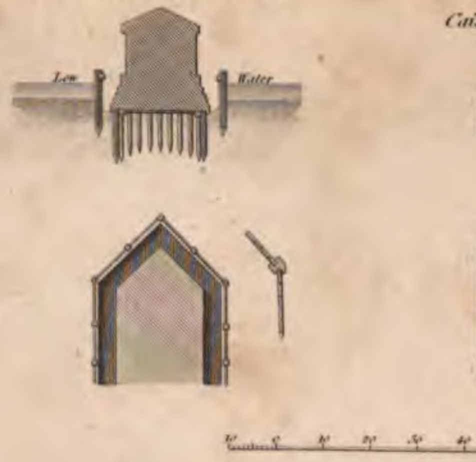


Fig. 2.

Caisson for founding the Piers of a Bridge.

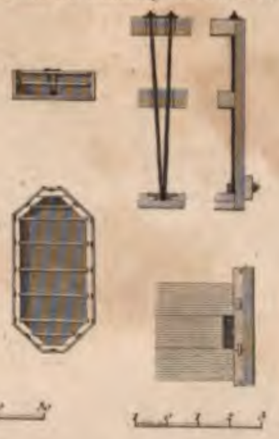


Fig. 4.

Circular Cofferdam

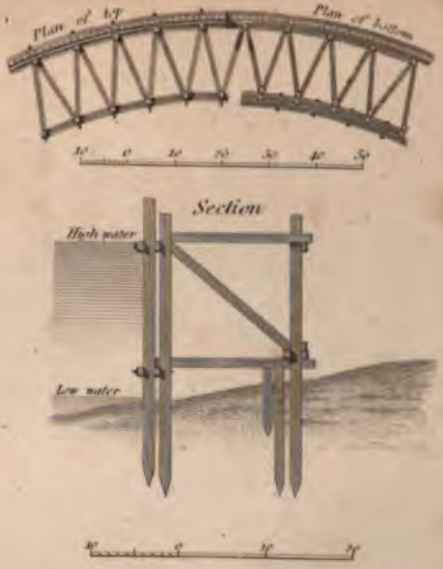


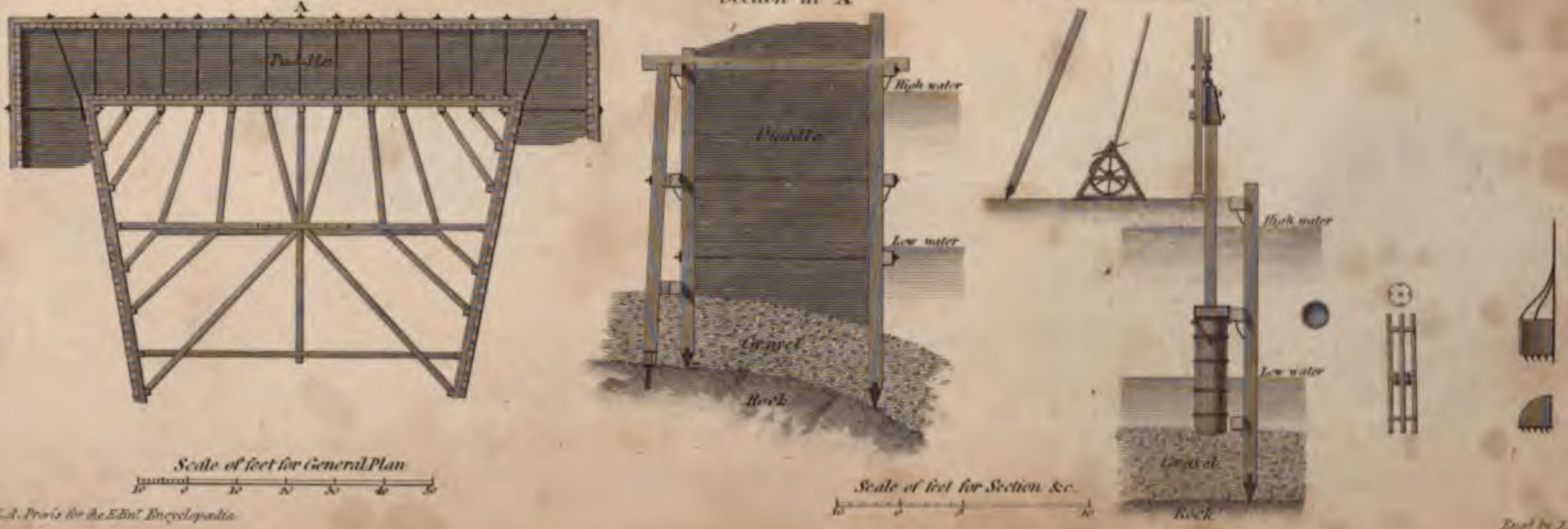
Fig. 3.

COFFERDAM used for Founding the SEA LOCK at the Western entrance of the CALEDONIAN CANAL.

General Plan

Section at A

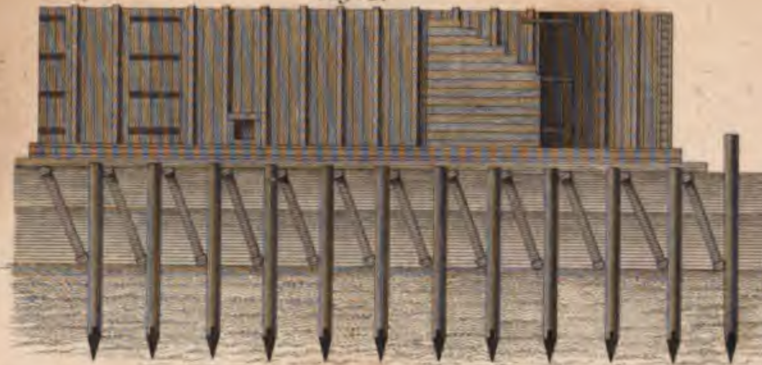
Method of driving down the Cylinder.



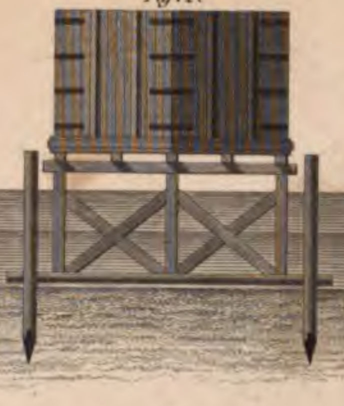
Drawn by W. A. Provis for the Edinr. Encyclopaedia

Engd by J. Moffat Edinr

CAISSON USED FOR FOUNDING THE PIERS OF WESTMINSTER BRIDGE.

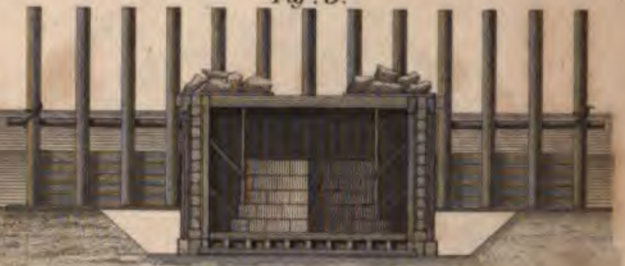


Elevation of one side with a Section of the end
Fig. 1.

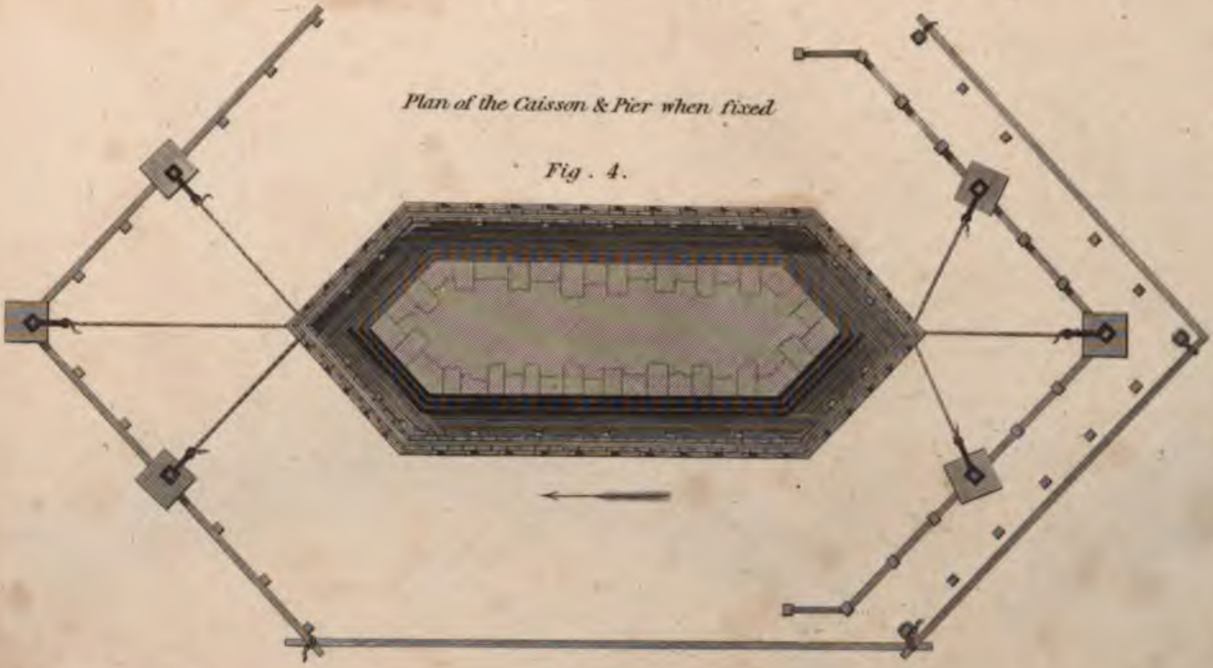


Elevation of one end
Fig. 2.

Scale of feet for Fig. 1. 2 & 4.

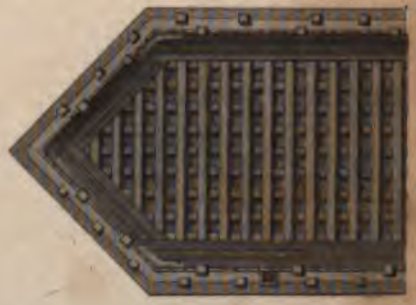


Transverse Section.
Fig. 3.

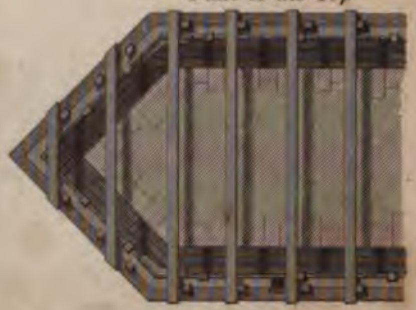


Plan of the Caisson & Pier when fixed

Fig. 4.



Plan of the Bottom



Plan of the Top

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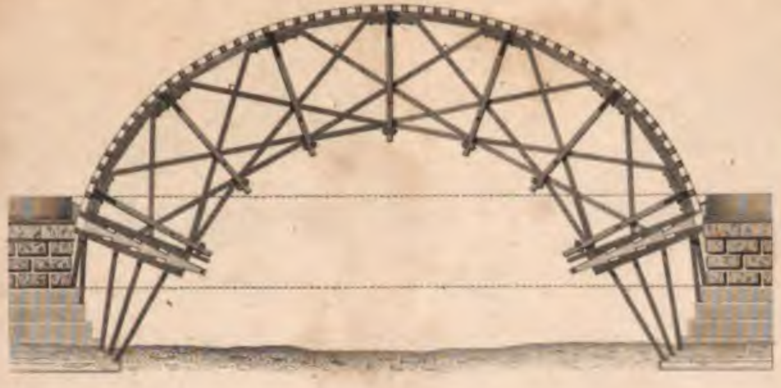
Eng^d by J. Moffat Edin^r

BRIDGE.

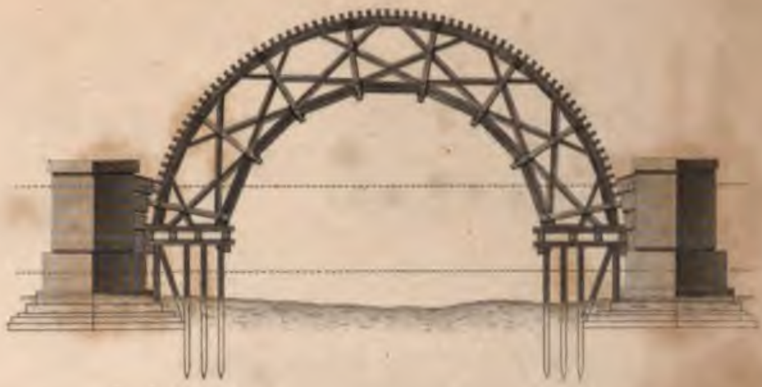
PLATE XCIX.

CENTERS

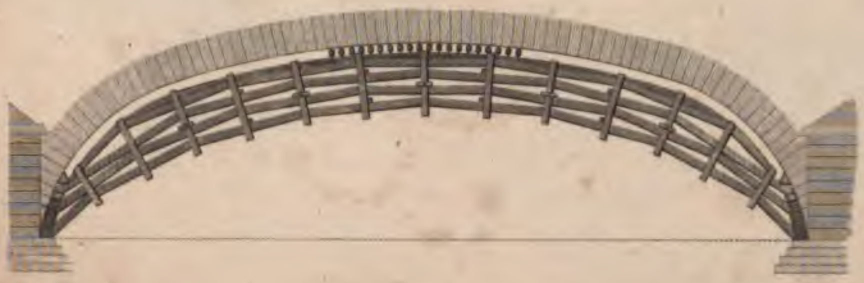
OF BLACKFRIARS BRIDGE, AT LONDON.



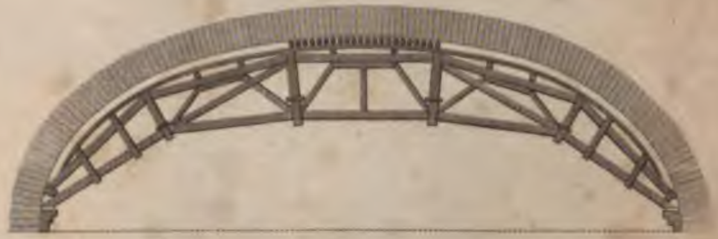
OF WESTMINSTER BRIDGE, AT LONDON.

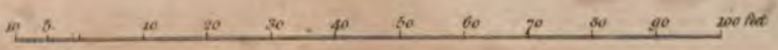


OF NEUILLY BRIDGE NEAR PARIS.



OF THE BRIDGE AT ORLEANS, IN FRANCE.



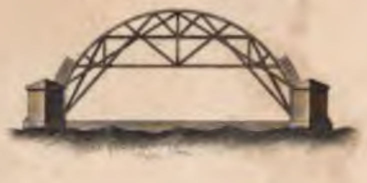


W. A. Prime del.

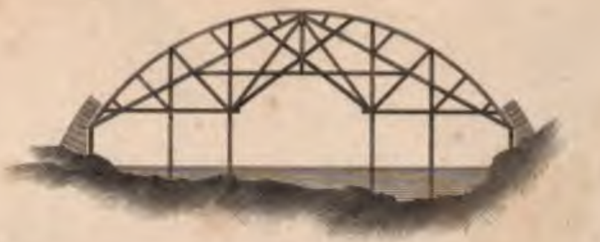
Eng^d by J. Moffat Edin^r.

CENTERS.

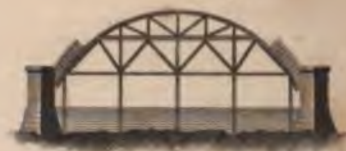
Ballater Bridge.



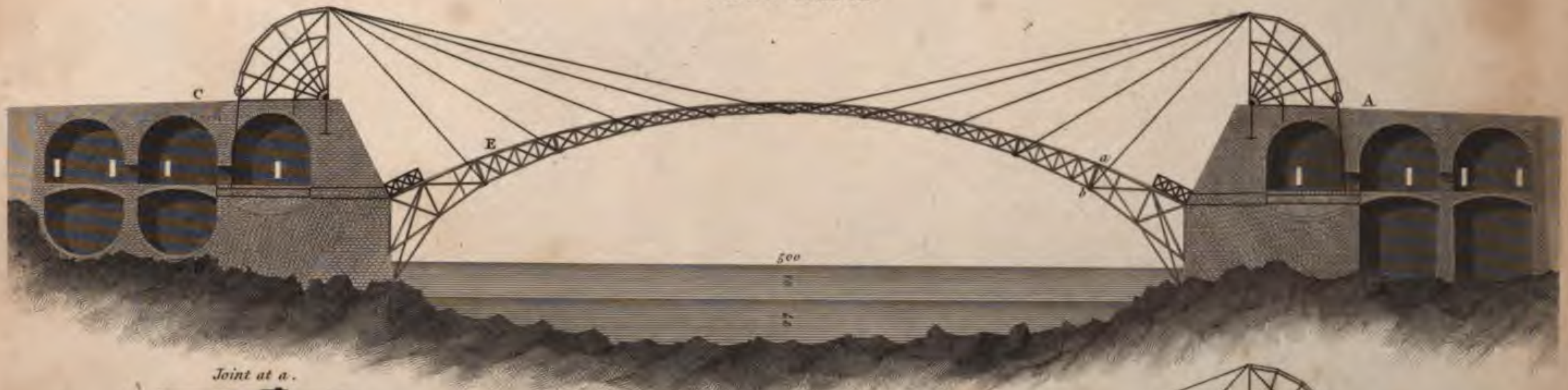
Tongueland Bridge.



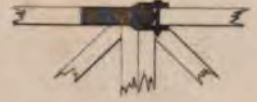
Conon Bridge.



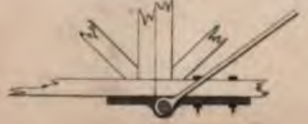
MENAI BRIDGE.



Joint at a.



Joint at b.

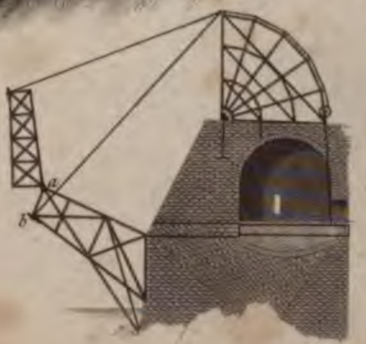


Scale of feet for Menai Bridge.

100 50 0 100 200

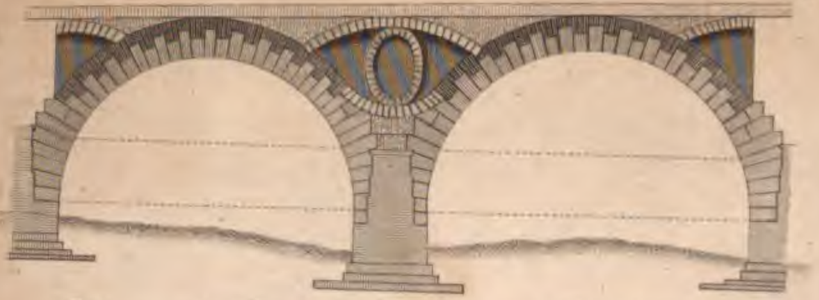
Scale of feet for Ballater, Tongueland & Conon Centers.

10 0 10 20 30 40 50 60 70 80 90 100

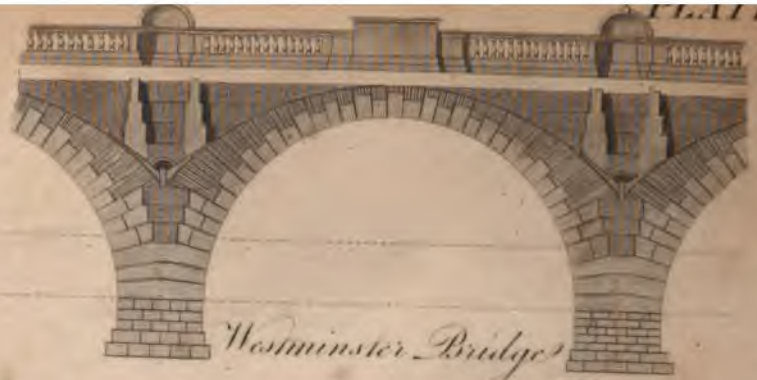


W. A. Provis delin. J. Moffat sculpt.

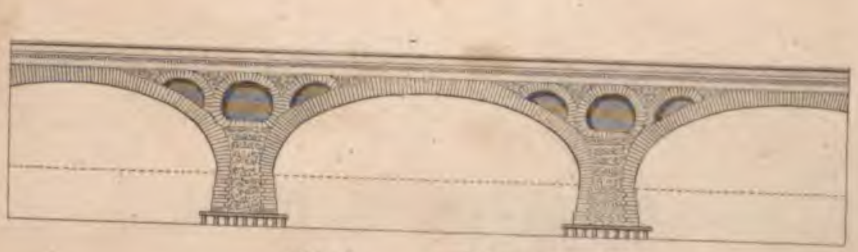
SECTIONS



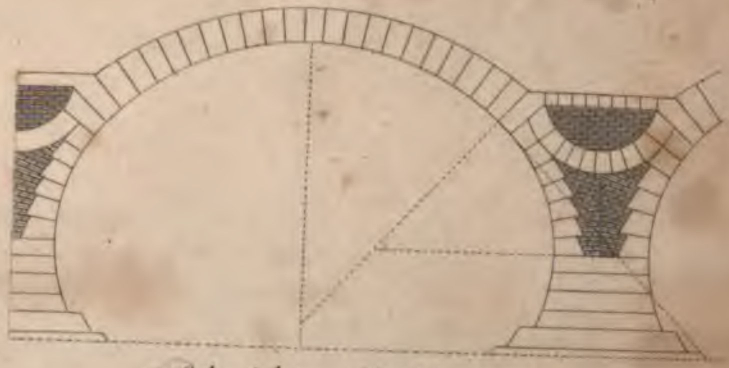
The sunk Pier of Westminster Bridge



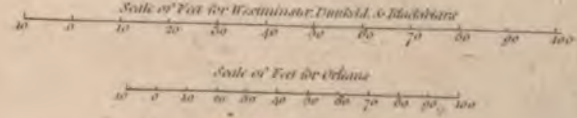
Westminster Bridge



Orleans Bridge

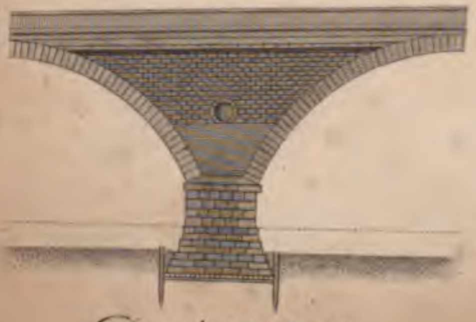


Blackfriars Bridge

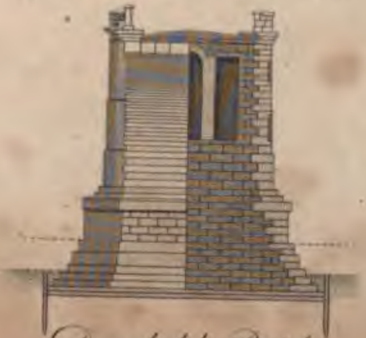


Scale of Feet for Westminster Dunkeld & Blackfriars

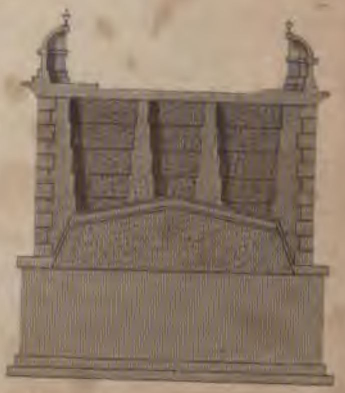
Scale of Feet for Orleans



Dunkeld Bridge



Dunkeld Bridge



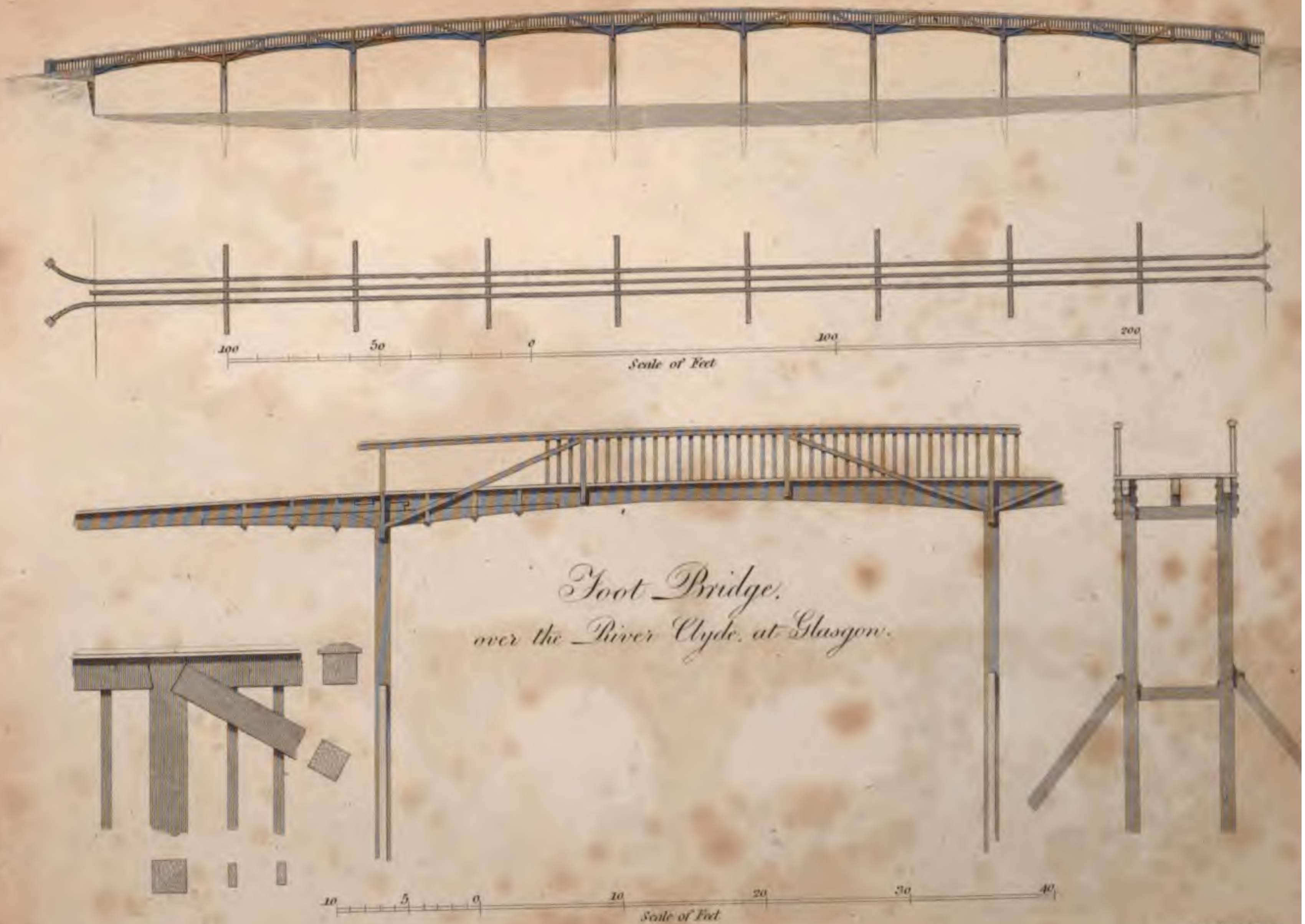
Westminster Bridge

W.A.Provis delin.

J.Moffat Sculpt.

BRIDGE.

PLATE CII.

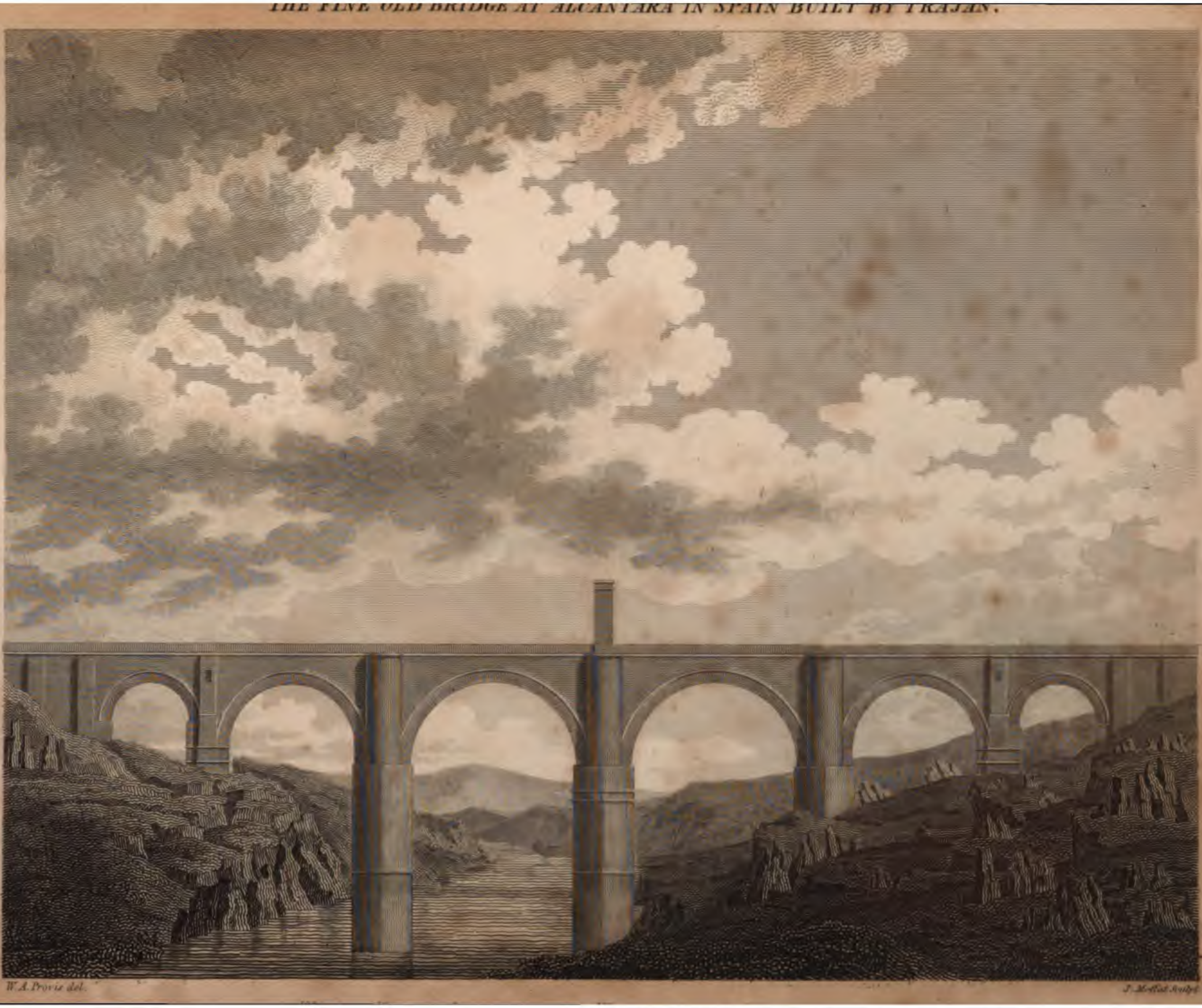


Foot Bridge,
over the River Clyde, at Glasgow.

W. A. Provis delin

J. Moffat Sculpt.

THE FINE OLD BRIDGE AT ALCANTARA IN SPAIN BUILT BY TRAJAN.



W. A. Provis del.

J. Moffat Sculpt

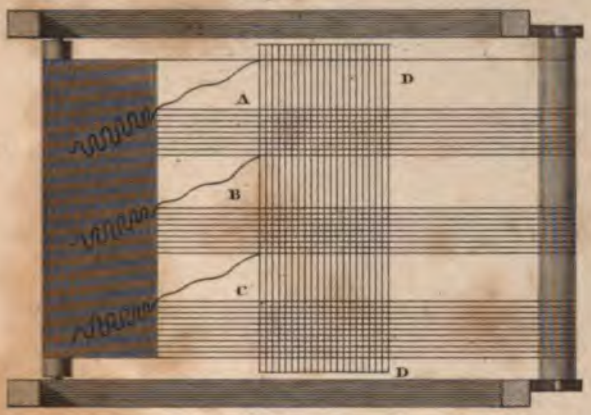
BROCADE.

PLATE CIV.

BROCADING IN THE LOOM AND SPOTTING.

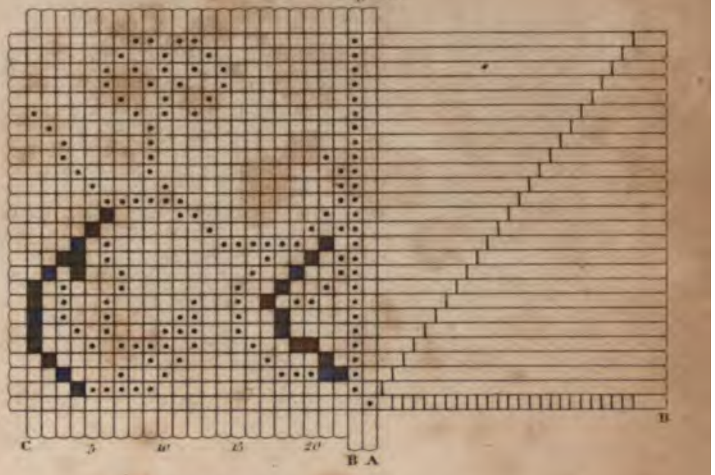
GENERAL PRINCIPLE.

Fig. 1.



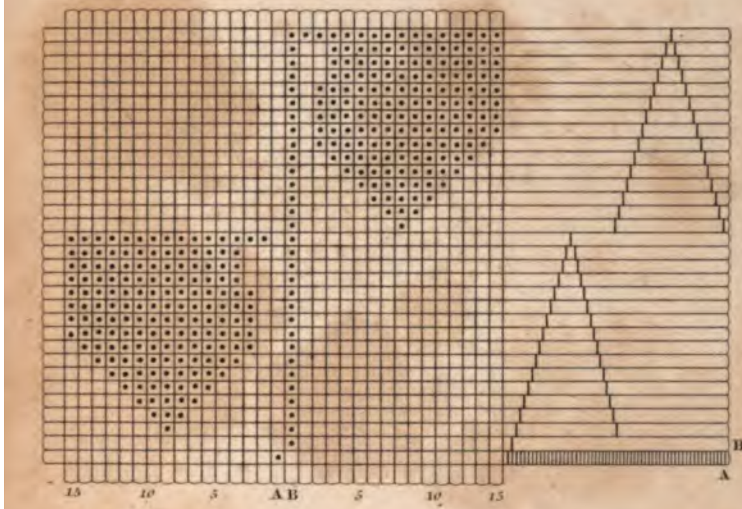
DRAUGHT AND CORDING.

Fig. 2.



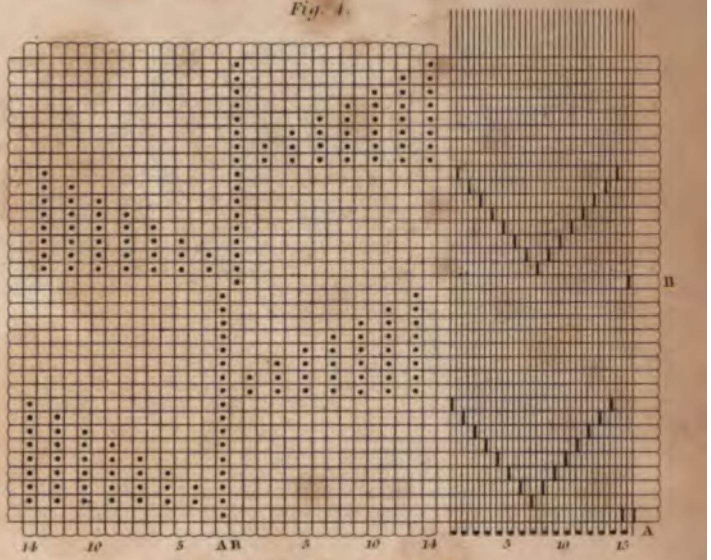
COMMON SPOTTING.

Fig. 3.



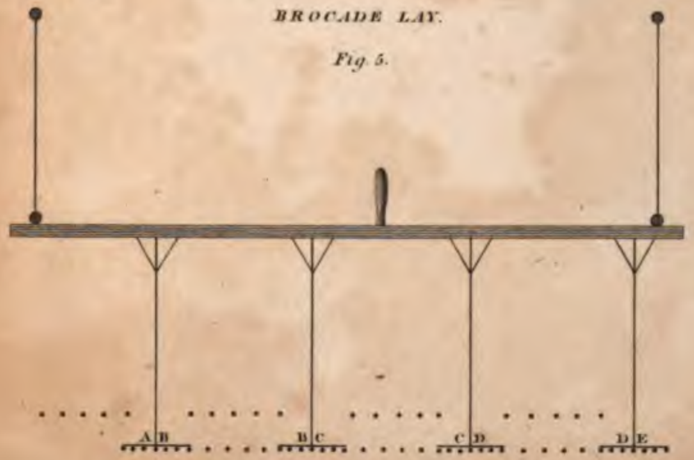
JAPAN OR PAPER SPOT.

Fig. 4.



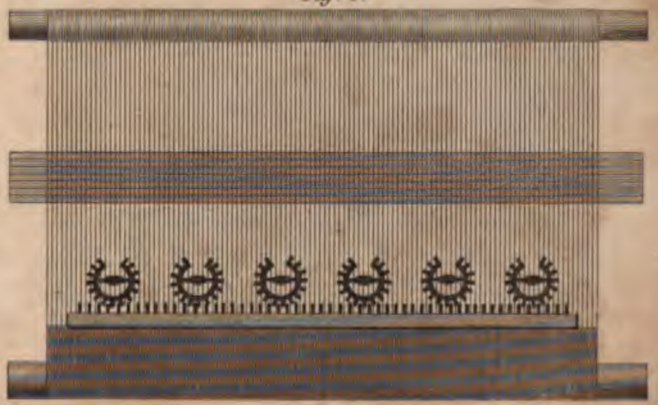
BROCADE LAY.

Fig. 5.



BROCADE SEGMENTS.

Fig. 6.



Drawn by John Duncan.

Engraved by J. Moffat &c